Computer Maintenance & Upgrading
30 Hour
Instructor's Guide

Contents

LJ Technical Systems

Workstation Installation

> **Important Note:** *To install this module on a Windows 2000 or XP workstation, you must be a member of the Administrators security group or equivalent.*

Pre-installation checks

Display Settings
The display settings of the workstation must be set as follows:

      Screen area   1024 x 768 recommended
                                     (800 x 600 minimum)

Internet Explorer
Microsoft Internet Explorer 6 or newer is required. This can be installed from the support folder on the Computer Maintenance and Upgrading CD-ROM if required.

❶ **Install the Computer Maintenance and Upgrading 30 hour Module software**
Refer to the instructions included with the **Computer Maintenance and Upgrading CD-ROM.** You should select the following module content option:

Computer Maintenance and Upgrading On-screen Assignments
This installs the on-screen assignments and student worksheets required for this module.

Other options:
Worksheets for Stand-alone Printing
If the student workstation does not have a printer installed (directly or networked), you may use this option to install the worksheets onto a separate computer that is capable of printing. This requires Adobe Acrobat Reader version 3 or newer to be installed on that computer, ideally the ClassAct Management System computer.

Create Start Menu Shortcuts
*Select this option if this module will **not** be run using a management system. This will enable students to run the assignments from the Start button on the Windows toolbar instead of the ClassAct Workstation Launcher.*

❷   **Install the video codec driver software**
     Note: This software must be installed on each computer using this module. If the video codec is not installed correctly, then the video clips will not play.

     Important: If the DivX video codec software is already installed, you should not install it again unless you experience problems when playing videos. In this case, uninstall the existing codec software before attempting to install it from the CD-ROM. More detailed information can be obtained in the **Codec.txt** file on the module CD-ROM.

     If the codec is not installed:
1.   Install the DivX codec by running the DivX installation file located in the **Support\DivX Codec** folder on the module CD-ROM.
     Follow the on-screen installation instructions, accepting the default settings to install the codec.
2.   On completion of the installation, ensure the codec is configured so that the DivX logo is not displayed when videos are played.

     This completes the installation and configuration of the DivX video codec. For more detailed instructions about how to install and configure the DivX video codec, refer to the **Codec.txt** file on the module CD-ROM.

❸   **Install the Adobe Acrobat Reader Software**
     This module requires students to access worksheets provided as PDF files. So that the student can view these files, an application capable of reading PDF files, such as Adobe Acrobat Reader, must be installed. If it is not already installed, you should install it now.

     If the module CD-ROM contains a **Support\Adobe Acrobat** folder, run the Acrobat Reader installation file located within it. If this folder does not exist, you can install Acrobat Reader using the ClassAct Workstation CD-ROM.

❹   **Install the Macromedia Shockwave Viewer**
     This module uses animations that require the Macromedia Shockwave viewer to be installed. If it is not already installed, you should install it now. This includes Flash Player 6 (or newer), which is required to run the module software.

     If the module CD-ROM contains a **Support\ShockWave** folder, run the Shockwave installation file located within it. If this folder does not exist, you can install Shockwave using the ClassAct Workstation CD-ROM.

❺ **Install the Interactive Media Instructor**

> *Important Note: It is essential that the **Interactive Media Instructor** software is installed onto the same drive as the **Computer Maintenance and Upgrading 30 hour Module software**.*

This module requires students to access computer-aided instruction in the form of interactive media lessons. Install the software from the **A+ Certification Training** CD-ROM. If the software does not run automatically when you insert the disk, run the setup file on the CD-ROM.

The software must be installed to:
x:\Program Files\LJ Technical Systems\Aplus2\
Where 'x' represents the drive containing the Workstation Launcher software.

❻ **Install the Lesson Module Template and Report Profiles**
Refer to the Laboratory Management Instructor's Guide for instructions to install a lesson module template and reports onto the management system computer.

❼ **Testing Software Installation**

> *Important Note: If you are running this module on Windows 2000 or XP, testing should be performed using the same security group as the students will be using. For example, you must be logged on as either a member of the local User security group or equivalent and not that of the Administrators security group or equivalent.*

A test assignment has been created to enable you to check that the workstation is ready. From the ClassAct Launcher, enter the **Launch Code** for the test assignment: **7366TEST**.

When the assignment has loaded, follow the on-screen instructions to ensure that the appropriate software runs. This should check that the student will be able to:
• open and print PDF worksheet files
• call, open, and print the HTML-style Instruction Sheets
• play videos embedded in the HTML-style Instruction Sheets
• execute links between Instruction Sheets and Pop-Up information boxes
• play Interactive Media Instructor computer-aided instruction lessons

Practice Computer Preparation

❶ **Unpacking and preparation**
Unpack the practice computer system unit and locate the **Microsoft Windows XP Installation disk and license key**.
Locate the **Practice PC Restore DVD**.

> *Important Note: Keep these items in a secure location.*
> *Both disks are unique to this PC, linked by the Windows XP Product License Key and the computer serial number, usually found on the rear of the unit. Duplicate Restore DVDs are not available and can only be re-made from a correctly working system with specialized software.*

Check that one copy of the **Norton GoBack** application, comprising software CD-ROM, manual, and Product Key has been supplied.

Remove the computer casing and check that all components are secure and that all data and power cables are connected to the installed units.

Release any nylon tie-wraps securing the power leads from the PSU – **do not** release the ties securing the cable bundle to the front panel LEDs and switches.

Display Settings
The screen resolution and color quality settings in Windows XP have been set for the monitor expected to be shipped with the computer. If you need to use different settings and **Norton GoBack** has already been installed, refer to the guidance notes in the **Troubleshooting** section: **I cannot permanently install new software on the Practice Computer System, nor can I make changes to the Windows XP Operating System.**

Windows XP Professional Service Packs
These instructions, the courseware, and teaching materials are designed to work with Windows XP Professional, Service Packs 1 & 2.

> *Important Note:*
> ***Windows XP Professional SP2** introduced a service called the **Security Center** to improve the management of viruses and other network and Internet security threats. Microsoft assumes that all XP installations will have a network or an Internet connection and makes recommendations based upon that assumption.*
>
> *The Practice Computer System is not expected to be used in this way, and so that the student is not distracted by reminders that the Security Center is not configured the way that Microsoft recommends, the service has been stopped.*

> *If you require further information about how to use the System Configuration Utility to start or stop this service, please contact LJ Technical Support.*

❷   **Installing Norton GoBack**

> *Important Note: The Norton GoBack software will allow students to complete Assignments without lengthy system restores. This process is called AutoBack by Norton. Apart from the initial installation instructions in this step, the process is referred to as **Auto-Revert** throughout the Computer Maintenance and Upgrading module .*
>
> *It is used in two modes:*
> 1   *At the start of each Assignment, to return the computer system to an "as shipped" configuration, regardless of a previous student's changes.*
> 2   *During each Assignment, to preserve or to undo configuration changes according to the instructions provided.*
>
> *It is **essential** that this software is used with the teaching materials and you are **strongly advised** to use the password protection recommended in the following instructions.*
>
> *You can find out more about the operation of the software by reading the Norton GoBack User Manual or by consulting the on-line help pages once the software is installed.*

> *Important Note: Norton GoBack is installed **either** from its own application CD-ROM, **or** from the Norton SystemWorks application suite CD-ROM. If you are installing from the SystemWorks application you will need a live Internet connection to activate the product.*

Turn on the computer and Log on as **Admin** password **Admin.** Examine the Start menu | All Programs entries to determine whether Norton GoBack has already been installed. If it has, proceed directly to Step ❸ to test its operation, otherwise you must follow the procedure below to install Norton GoBack.

1.   Insert the CD-ROM installation disk containing the Norton GoBack software application and run the setup/installation program. Follow the on-screen instructions to install / update the Microsoft Windows Installer if requested.

If you are installing GoBack from a Norton SystemWorks application CD-ROM, then carry on with steps 2 to 16, then skip steps 17 to 30.

Otherwise, if you are installing GoBack from a Norton GoBack CD-ROM, skip to step 17 now.
Both procedures recommence at step 31 to configure GoBack.

2. Accept the License Agreement and enter the product key. Click Next.

3. If the setup program performs a pre-installation scan, then review the results and click okay if no problems are found. Otherwise refer to the on-line help or to LJ Technical Systems support.

4. Click Next.

5. At the INSTALLATION TYPE screen, click Custom.

6. Click Browse and choose to install to the Course Util: drive. Create a folder with the name of "Norton GoBack". For example, if the Course Util drive is drive D:, then you should set:

   D:\Norton GoBack

   as the destination folder. Click Next.

7. Deselect the option to install Norton Utilities and Norton Cleanup.

8. Click Customize Norton GoBack.

9. At the PARTITION SELECTION screen click Next to accept the defaults

10. Click Next.

11. Wait while the installation proceeds and a GoBack drive is created.

12. When the installation is complete, remove the software installation disk and restart the computer. Do not intervene during this process.

13. Log on to the Student Admin account.

14. Launch Norton SystemWorks. At this point the system may recommend a "Live Update". Allow this to take place. You will need an Internet connection for this to succeed.

15. Follow the on-screen instructions to activate the product.

16. Navigate to the Norton GoBack | Disk Drive Protection display and click Autoback. *Now go to step 31*

    Continue from step 1 here. Steps 17 to30 are only required if you are installing Norton GoBack from its own CD-ROM.

17. At the WELCOME screen, click Next.

18. Accept the License Agreement and click Next

19. If the setup wizard offers a README file, view it then click Next to accept the default registration entries.

20. At the INSTALLATION TYPE screen, click Custom Install.

21. Click Browse and choose to install to the Course Util: drive. Create a folder with the name of "Norton GoBack". For example, if the Course Util drive is drive D:, then you should set:

    D:\Norton GoBack

    as the destination folder.

22. Click OK then Next.

23. If you are offered the option, do not place a Norton GoBack icon on the desktop, nor place an icon in the system tray.

24. At the SPACE ALLOCATION screen, click Next to accept the default.

25. At the SUMMARY screen check that all drives are protected. Click Finish.

26. Wait while the installation proceeds and a GoBack drive is created.

27. When the installation is complete remove the software installation disk and restart the computer – Do not intervene during this process.

28. Log on to the admin account.

29. Launch Norton GoBack.

30. Click Options.

    The steps below are common to installation of Norton GoBack from its own CD-ROM and to installation from the Norton SystemWorks application suite CD-ROM.

31. Select the Passwords tab.

32. Click Change Administrator Password.

33. Leave the Old password: field blank.

    Note: If GoBack has previously been used on the computer, you may need to type the old password into the Old Password field.

34. Type ljtechnical (or a password of your choice) in the New password field; repeat it in the confirmation field and click OK.

    Note: ljtechnical is also the default password to change the BIOS settings. It is recommended that you simplify the task of remembering passwords by using one only.

35. Click Change Level for Feature.

36. Set the options for Restore Disk, Cancel AutoBack, and Restart from Floppy/CD to None.

37. Set all other options to Admin. Click OK, enter the password and click OK.

38. Select the AutoBack tab.

39. Check the Enable AutoBack box and click Change Options / Schedule.

40. Check only the AutoBack on any Restart box.

41. Click OK; enter the password and click OK to return to the Norton GoBack OPTIONS screen.

42. Click OK.

43. Click OK to restart and enable Auto-Revert; click OK; enter the password and click OK.

44. Wait while the system restarts and prepares the Auto-Revert buffer – Do not intervene during this process.

45. When the Windows XP desktop appears, installation is complete.

❸ **Testing the Operation of Norton GoBack**
This can be best achieved by making an immediately obvious change to the system, restarting it, and overriding the auto-revert software. You can then see that the change has been preserved. If you then restart the system and allow the auto-revert to operate, you see that the changes you made are discarded. Remember that although Norton calls this process AutoBack it is referred to from this point on as **auto-revert.**

Firstly, test that the software can be overridden:

1. Log on to the Student_admin account.

2. Alternate click on the desktop to bring up the Properties dialog box, and select the Themes tab.

3. Click the down arrow next to the Theme; click on Windows Classic and click Apply. The system will take a few seconds to change.

4. When the Display Properties dialog box is redisplayed (in its changed style), click OK.

5. Restart the computer.

6. Press the space bar when the auto-revert software displays the reducing red bar giving the choice to cancel the auto-revert.

7. Confirm cancellation of the auto-revert by clicking Yes. Then click Continue from the Norton GoBack BOOT MENU.

    Note: If the mouse is not working, you can use the keyboard navigation keys to select a button and press the Enter key to accept your choice.

8. When Windows XP has started, log on again to the student_admin account to show the display is still set for Windows Classic.

> *Important Note: Steps 1 through 8 confirm that the auto-revert software can be overridden so that configuration changes can be kept, even though the system has been restarted.*
> *The student will use this feature as instructed during Assignments, for example where software installation requires a computer restart.*

Now, test that the software will automatically return the computer to its original as shipped configuration.

9.   From the Start menu, click on Turn Off Computer.

10. Select Restart from the options displayed and allow the computer to start Windows XP again.

11. Do not intervene in this process; the default option will operate to revert to the base configuration.

12. Log on once more to the Student_admin account and notice that the change from Windows XP style to Windows Classic has been discarded.

Important Note: *Steps 9 through 12 confirm that the auto-revert software is operating correctly.*
The student will use this feature at the start of each Assignment so that any configuration changes made by previous students will be discarded. The student will also use this option occasionally, as instructed in the teaching materials.

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13. The installation is tested. Store the Norton GoBack application software CD-ROM and accompanying materials away from the Student Workstation. They are not required for use by the student.

Important Note: *Steps 9 through 12 confirm that the auto-revert software is operating correctly.*
The student will use this feature at the start of each Assignment so that any configuration changes made by previous students will be discarded. The student will also use this option occasionally, as instructed in the teaching materials.

Workstation Maintenance

Note-taking by students

Student Worksheets have been provided in PDF format so that they can be printed. The student worksheets provide space for students to:

- Record information that can be used to answer questions.
- Produce short texts or diagrams that can be instructor-marked.
- Make their own notes for the purposes of revision and so forth.

If the student workstation has access to a printer, the students can print the worksheets as they need them.

If the student workstation does not have access to a printer, the worksheets should have been installed on a computer that does. On that computer, click the Windows Start button and select Programs | LJ Student Worksheets | Computer Maintenance & Upgrading. This should display a list of Worksheets required for the module. Clicking a button will open a particular worksheet in Adobe Acrobat Reader, allowing it to be printed (Select File | Print).

Practice Computer - BIOS Passwords

The BIOS (CMOS utility) settings are accessible in two modes:

A. User mode. The student will enter this mode during the module to observe and record settings, but they cannot be changed. The password for this access is either **not set** (in other words pressing the Enter key only provides access), or is set to **Student.**
Ensure that the students know how to access the CMOS Utility in User mode.

B. **Administrator** mode. In this mode, settings can be changed. The student is not required to change any of these settings and **should not** be provided with this password. The password for this access is set to:
<div align="center">

ljtechnical
</div>

If you choose to change these passwords record them and keep them in a secure location. Recovery from lost BIOS passwords is possible by changing hardware settings on the motherboard. Refer to the motherboard documentation for more information.

Practice Computer - Windows XP Account Passwords

The Windows XP operating system has been supplied and configured with two accounts, both of which the student uses throughout the **Computer Maintenance and Upgrading** module.

A. **Student_admin**. This account is an Administrator account, from where any change to the system can be made.

B. **Student_user**. This account is a limited access account where only changes affecting the logged-on account can be made.

The student is required to use **both** accounts in the module – some activities are not possible using only the Student_user account.

Neither of these accounts is shipped as password-protected, and passwords are not required for the student activities.

> *Important Note:* *If you choose to set passwords, do so* ***before*** *Norton GoBack is installed. If Norton GoBack has already been installed and enabled you must disable it, set the passwords as required, and then re-enable it.*
> *Refer to the Norton GoBack user documentation for further information.*
> *LJ Group strongly advise that you create a Password Reset Disk if you choose to protect the operating system accounts with passwords.*

3 ½-inch floppy disk usage and labels

The student will require a floppy disk for two tasks in this module (Assignment 2, Task 5; Assignment 6, Task 2).
The same disk can be used for each task, and recycled by subsequent students. The Assignment inventory screens state that a blank diskette is required, but this is not essential – the course material takes account of the possibility of the disk not being blank. If problems are experienced writing to, or reading from, a diskette, follow the standard Windows procedures to format a floppy disk.

The students are advised that it is good practice to label media that they use. In a learning environment this may not be practical, so decide this accordingly. Make sure that the students are aware of your decision.

Type of Monitor – CRT or Flat Panel

The teaching materials have been designed to work with either a traditional CRT monitor, or with a flat panel LCD monitor.

Important Note: CRT monitors and Flat Panel monitors may require different Windows operating system settings.
*To explore the configuration options, access the Windows XP Help and Support Center and review the **Customizing your computer** and **Screen savers and screen settings** topics.*

Warning: If you wish to make permanent changes to the practice computer settings you must first disable Norton GoBack.
Follow the instructions in the Norton GoBack on-screen help or User's Guide to disable, and then, when the changes have been made and tested, re-enable Norton GoBack.

In Assignment 9 the student is guided through practical tasks, some of which will not be possible if only a flat panel monitor is available. If you have been supplied with a flat panel, you **do not** have to provide a CRT monitor, however, if one is available for the students, they will be able to experience working with both types.

Type of Hard Drive – Serial ATA or Parallel ATA

The module is supplied with an additional hard disk drive, (and special power lead and data cable if appropriate) which the students use in Assignment 14.

The teaching materials have been designed to work with either a serial or parallel connection for this device, and the student is directed to instruction sheets that provide details of the installation for both types. The student is given the appropriate information to enable them to recognize the hard drive type, and then to choose and follow the appropriate instructions.

Type of Motherboard

The motherboard and its capabilities are a significant element in this module. The teaching materials are designed to work with most types, and the student is advised where features may or may not be present on the actual motherboard supplied. The latest specification motherboards for example, include Serial ATA connections and PCI-Express slots.

Other hardware variations

Other component parts of the Practice Computer and its peripherals may also be upgraded over a period of time, and again the teaching materials are designed to accommodate the differences and the student advised where features may or may not be present.

Troubleshooting

When I click the button to open a student worksheet from the student workstation, nothing happens.

The button attempts to open the worksheet PDF document using the software that the Windows operating system associates with PDF documents. This problem usually signifies that there is no application associated with PDF files. Try installing Adobe Acrobat Reader from the module CD, following the installation instructions shown earlier.

If this fails, it may be that the worksheet PDF files are missing.
The following files should be located in the directory:
ljcai\lf_cai\tp\m7366\resource

ws01.pdf	ws06.pdf	ws11.pdf	ws16.pdf
ws02.pdf	ws07.pdf	ws12.pdf	ws17.pdf
ws03.pdf	ws08.pdf	ws13.pdf	ws18.pdf
ws04.pdf	ws09.pdf	ws14.pdf	ws19.pdf
ws05.pdf	ws10.pdf	ws15.pdf	ws20.pdf

If not, install the **Worksheets for Stand-alone Printing** option of the module content on that computer.

The popup windows in the Instruction Sheets appear as a thin bar so the information is not visible.

This is an issue with certain versions of Microsoft Internet Explorer. This will require upgrade to a more recent version. A version of Internet Explorer that has been tested with this module can be installed from the support folder on the Computer Maintenance and Upgrading CD-ROM.

The Practice Computer System does not auto-revert to the "as-shipped" configuration.

Check the Norton GoBack settings (Please refer to the **Practice Computer Preparation** instructions above, Step ❷)

If you have lost the "as shipped" configuration, either rebuild it, or reinstall the operating system using the Practice PC Restore DVD from the instructions in this Installation Guide.

I cannot permanently install new software on the Practice Computer System, nor can I make permanent changes to the Windows XP Operating System.

This problem is likely to be because the Norton GoBack software is reverting to the "as shipped" configuration on each restart. Before making any software or hardware changes, which you wish to be permanent, you must disable the Auto-Revert function.

Follow the instructions in the Norton GoBack on-screen help or User's Guide to firstly disable, and then, when the changes have been made and tested, re-enable Norton GoBack.

I need to restore the entire Windows XP Operating System on the Practice Computer System.
A Norton Ghost mirror-image DVD has been provided that can be used to reinstall the operating system to the "as shipped" state. This means that the system will be returned with disk partitions, User Accounts, Windows XP preferences, and so forth, correctly set for use by the student.

> *Important Note: Each Practice PC restore DVD is unique to the PC hardware configuration. Unless advised otherwise by a representative of LJ Group, you should not attempt recovery of a system without the DVD with which it was shipped.*

To reinstall the software, follow the procedure here:
(The process should take approximately 10-15 minutes)

1. Find the Practice PC Restore disk.

2. Check the License Key entry on the DVD label matches the Microsoft Windows XP Product Key. This is normally found on the Windows holographic label, affixed to the outside of the system unit, or with the documentation provided with the Windows CD-ROM.

3. Insert the restore disk into the DVD drive, restart the computer and follow the on-screen prompts. If the system does not boot from the disk, you will need to check the CMOS settings and change the boot sequence accordingly.

4. At the ABOUT NORTON GHOST screen, click OK.

5. Select Local | Disk | From Image.

6. Click the down arrow in the Look in: window, select the restore disk and click Open.

7. At the Select local destination drive, click OK.

8. Change the New Size of partitions 1, 2, and 3 to 10001. Do this by overtyping the entries for each partition in the New Size column.

Part	Type	ID	Description	Label	New Size	Old Size	Data Size
1	Primary	07	NTFS	DiskLoad	10001	Various	Various
2	Logical	07	NTFS extd	DiskLoad	10001	Various	Various
3	Logical	07	NTFS extd	DiskLoad	10001	Various	Various

9. Check the New Size entries on the screen match those above and click OK.

10. Click Yes to proceed with the system restore.

11. Click Continue when the Clone Completed Successfully message appears.

12. Quit the software to return to the A:\GHOST Prompt.

13. Remove the disk from the drive and store it securely

14. Restart the computer.

Following the reinstall you must follow steps ❷ through ❸ of the **Practice Computer Preparation** section above.

I need to restore the entire Windows XP Operating System on the Practice Computer System, and I do not have a Practice PC Restore disk.
If you do not have the original practice PC restore disk, you must re-install Windows from an original Microsoft Windows XP Professional installation CD-ROM. This means that the system will be returned with the default Microsoft settings.

Important Note:. The system must be further configured for it to be usable with the Computer Maintenance and Upgrading teaching materials.

1. Follow the Microsoft installation procedure to do this. The teaching materials were written for Microsoft Windows XP Professional; Version 2002; Service Pack 1 or Service Pack 2. Other versions of Windows may not allow the student to follow the teaching materials exactly.

    (Allow 1 to 2 hours to complete the process, longer if you have not previously installed a Windows Operating System.)

    During this installation process you must partition the hard drive so that it is configured as shown here:
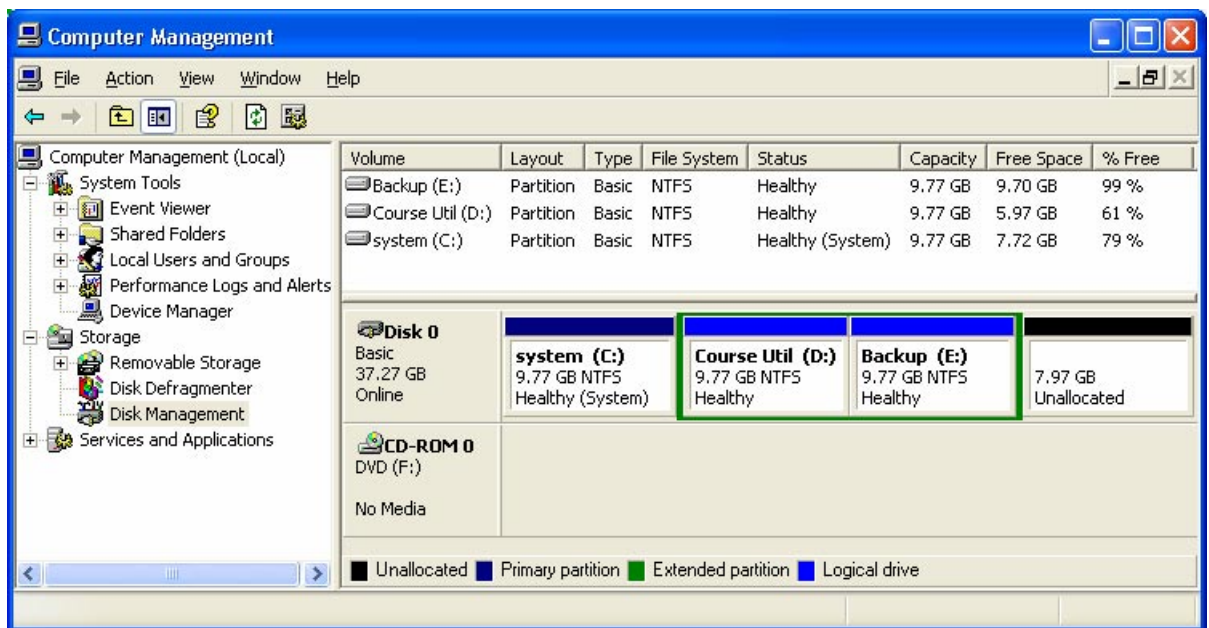
Figure 1 – Sample display of partitioned disk

*Important Note:. It is **essential** that there are three partitions, and that there is an amount of Unallocated space for the student to practice with. It is also important that the partitions are **named** as above. The drive letter assignments and actual partition sizes shown are presented for guidance and should be set like this if possible.*

2. When you are asked for information during REGISTRATION, use Student / Practice Class.

When Windows XP Professional has been installed you can continue to configure it for student use.

3. Log on as Administrator.

4. Make sure that the Start menu is set to Windows XP style rather than Classic Style as follows:
Click the Start Menu tab and make sure that Classic Style is NOT selected.
If it is, click the Start Menu option to select the Windows XP style.

5. Make sure Control Panel is set to Category View:
Click Start | Control Panel. If the Control Panel is displayed in Classic View, change it to Category View.

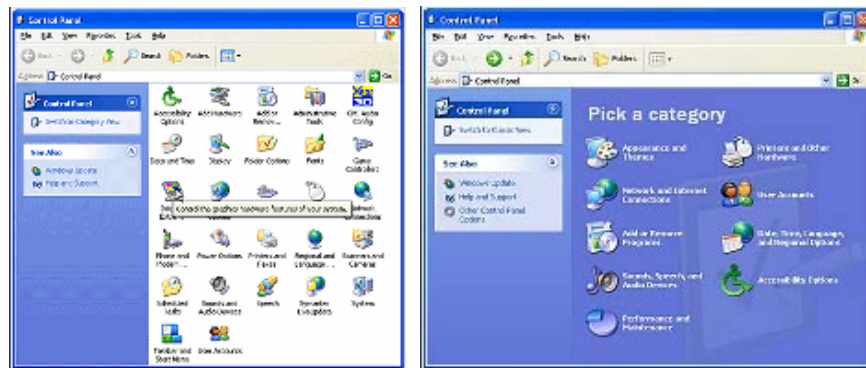Fig. 2 Control Panel Classic View...   ...and Category View

6. Click User Accounts and create two new user accounts:
Student_admin   Create this account as an Administrator.
Student_user   Create this account as Limited.

7. Ensure Fast User switching and the Welcome screen are enabled as follows:
From the User Accounts window, select Change the way users log on or log off. Make sure the Use the Welcome Screen and Use Fast User Switching options are both selected, and click Apply Options.

8. Restart the computer and log on as Student_Admin.

9. Check that the following accounts are displayed in Control Panel | User Accounts: Student_admin, Student_user, and Guest.
Delete any other accounts and exit Control Panel.

10. Click Performance and Maintenance | Power Options | Hibernate. Check the Enable Hibernate box. Click OK and exit Control Panel to view the desktop.

11. Turn off/disable the Security Center Service and Automatic Updates.:
This PC is not intended to be connected to the Internet, a LAN, or any other computer. Turning off these features is not considered a risk in these circumstances and prevents the student from being distracted by frequent operating system warning messages. You should seek further advice if you do intend to make connections to other computers.

12. Click Start | All Programs | Accessories | System Tools | Activate Windows to check that Windows XP is activated. Close the information box and return to the desktop

    If the version of Windows you have installed requires activation you must do this now. Follow the procedure recommended by Microsoft.

13. Delete all desktop icons apart from the Recycle Bin and then empty the Recycle Bin.

    If you have access to software and hardware that will allow you to create a new mirror-image DVD, do so now.

    Following the reinstall you must follow steps ❷ through ❸ of the **Practice Computer Preparation** section to install and test Norton GoBack.

Assignment Details

No Application launch codes are required in this module.

Certain assignments in this module contain practical activities that build on each other, from start to finish. For example, the student may install a hard drive, partition and format the drive, and later on remove the drive. If a student were to suspend their work before completing this assignment, the student will find they have to restart the assignment from the beginning at the next session, or it may cause problems for other students working on the module between these sessions.

Assignments which need to be completed in one session have been identified on this page. There is also a warning for students during the introduction screens of these assignments.

Assignment No.	Description	Requires completing in one session
1	Getting Started	-
2	Working with the Computer	-
3	Internal Components	-
4	Windows XP	-
5	The Motherboard and the CMOS Settings	-
6	Starting Windows	YES
7	Motherboard Components	-
8	Memory	YES
9	Monitors	-
10	Managing Folders, Files, and Software	YES
11	Protecting the System	YES
12	The Control Panel	-
13	The Computer and Multiple Users	-
14	Hard Disk Drives	YES
15	The Windows Registry and Device Installation	-
16	Printers	-
17	Modems	YES
18	Optical Storage Devices and Backup	YES
19	Managing Disks	-
20	Adding Peripherals	YES
63	Pre-test Quiz: Part 1	-
64	Pre-test Quiz: Part 2	-
65	Post-test Quiz: Part 1	-
66	Post-test Quiz: Part 2	-

Competence Reports

Refer to the report setup facility at the management station to view the competency report structure for this module. From here it is possible to see the question links for the competencies.

Pre-test Quiz

The pre-test quiz aims to test student knowledge of the subject prior to their starting the module. The test does not form a part of the final grade.

It is expected that the student, if having not studied the subject before, would answer incorrectly to the majority of the pre-test questions. The student should not be worried by this, as the areas will be covered within the module.

The pre-test quiz includes at least two questions from each topic that will be addressed within the module. The pre-test also contains questions that test the student's basic skills in reading and math. If the student fails to answer these questions correctly, it indicates that he or she may not have the necessary basic skills to complete this module.

The pre-test quiz is used to generate an **entry report** to the module. In the entry report, the student's competency in the basic skills and the technical outcomes for the module are indicated.

An **exit report** is generated from student responses to technical and basic skills questions asked throughout the assignments and in a post-test quiz. In the exit report, competency in the basic skills and the technical outcomes for the module are indicated.

When the exit report is compared with the entry report, an indication of student competency gain becomes apparent.

The questions in this pre-test relate to topics that will be studied in the assignments of this module.

The following table shows the pre-test question / assignment relationship.

Question	Assignment		Question	Assignment
Part 1			**Part 2**	
1	3		1	11
2	2		2	14
3	2		3	12
4	1		4	16
5	1		5	20
6	3		6	19
7	4		7	19
8	10		8	15
9	9		9	13
10	9		10	16
11	5		11	18
12	5		12	14
13	6		13	17
14	8		14	16
15	7		15	20

Pre-test Quiz: Part 1

1   b

Electrostatic discharges can irreparably damage some components such as memory chips.

2   a

Personal computers process digital information.

3   d

Double-clicking the icon opened it.

4   b

A PS/2 keyboard connector.

5   c

12 x 3 = 36.

6   b

Parallel ATA is a data transfer standard.

7 |d|

Keyboard.

8 |a|

Classic.

9 |d|

Pixel.

10 |a|

LCD monitors operate following the principles of polarity of light.

11 |b|

Types of expansion card.

12 |c|

Ribbon.

13 |No|

Twin boot systems can be configured with operating systems on different hard disk partitions.

14 |d|

DIMM . Dual In-Line Memory Module.

15 |b|

An Accelerated Graphics Port slot.

Pre-test Quiz: Part 2

1 |b|

The 1980s.

2 |d|

The platter.

3   b

Windows Components.

4   a

Heavy, smooth, and very fast drying.

5   c

Three, two satellites and a subwoofer.

6   c

A maximum of four primary partitions can be configured.

7   c

Defragmenter.

8   d

The Registry is such a repository.

9   d

A group of computers that are part of a network and share a common directory database.

10   b

Impact printing.

11   a

To release a jammed optical disk.

12   a

NTFS16 is not a recognized file system.

13   b

Modem.

14   c

Laser printers contain these three components.

15   c

A trackball mouse with an optical sensor should be cleaned this way.

Assignment 1   *Getting Started*

Task 1   In this task the student identifies and explores the Learning Resources used throughout the module. By using a Flash tutorial, the student is shown the form in which instructions and information are provided for the practical work that will be required to be done in this and later Assignments.

Task 2   In this task the student continues familiarization with the Learning Resources by connecting the Practice Computer System unit to the keyboard, mouse, and monitor, and logging on. The student practices using the auto-revert software which provides a common starting configuration for each Assignment. The student is also made aware of safe working practices.

Task 3   The student is directed to the textbook to read about electricity. The material provides a simple explanation of electricity and some basic terminology.

Task 4   The student reads further, on the subject of Electrostatic Discharge, and learns how components can be protected from the potentially damaging effects of this phenomenon.

Task 5   The student works with the Practice Computer System following the procedures in an Instruction Sheet to open up the computer case and take the necessary precautions to avoid electrostatic discharge. Finally the student closes the computer casing and returns the Practice Computer System to the state in which it was found.

Note: At the end of each Assignment the student is directed to turn the computer off. This is so that the next time the computer is used the auto-revert software will operate and, by default, discard the changes the student has made.

Note: In task 2, the student is asked to restart the Practice Computer System and to override the "auto-revert" software so that work already completed is preserved. If this is not done, the computer will restart in the "as shipped" configuration and some earlier work will have to be repeated.

1.1a   b

Student Worksheets ask for something to be written or for a drawing or sketch to be made.

1.1b $\boxed{c}$

Work should be carried out only on the Practice Computer System
supplied with the module.

1.2a $\boxed{No}$

Connect the keyboard, mouse, and monitor cables. Connect the AC
power leads, then finally turn on the AC power.

1.2b $\boxed{c}$

There are three rows of five to accommodate
a typical 15-pin style DB connector.

1.2c $\boxed{b}$

The Mini-DIN is a PS/2-style connector.

1.2d $\boxed{d}$

Pressing the space bar cancels the auto-revert process, so it should be
left untouched.

1.2e $\boxed{c}$

Review and check the steps that you have completed so far.

1.2f $\boxed{d}$

A Capacitor. Batteries typically store low-voltage electricity. The other
items are not specifically designed to store electricity.

1.2g $\boxed{c}$

MSDS and COSHH sheets provide guidelines for disposing of chemicals
and of other hazardous materials.

1.3a $\boxed{b}$

The mathematical correlation is expressed in the formula: VA = W, hence
12 x 3 = 36.

1.3b $\boxed{a}$

Ohms is used as a measure of the resistance in a wire.

1.4a $\boxed{a}$

Static electricity, and therefore the risk of ESD, is most prevalent in dry
and cool environments.

1.4b c

Tiny resistors are incorporated into anti-static wrist straps and mats to prevent a static charge racing through the device.

1.5a b

If a computer is connected to the AC power supply you should only work with the internal components when specifically instructed.

1.5b No

There are many occasions when you should make a record of connections.

1.5c No

ESD is caused when two objects with a dissimilar electrical charge touch.

Assignment 2 *Working with the Computer*

Task 1   In this task the student is introduced to the Interactive Media Instructor and studies two lessons that give an overview of computer subsystems. This task also gives the student the opportunity to explore the Interactive Media Instructor navigation tools.

Task 2   The student continues to use the Interactive Media Instructor to learn about the input, processing, output, and storage subsystems, and to match common peripherals and components by sight to one of the categories.

Task 3   In this task the student works with the Practice Computer System (guided by an Instruction Sheet) to explore the options that Windows XP provides to enter the power-saving Standby and Hibernate modes. The student is also shown how to switch between accounts and how to log off an account. During this task the student is introduced to the Windows XP Help and Support Centre.

Task 4   The student is directed to the textbook to read about how Windows Advanced Startup Options can be used to troubleshoot Startup failures. The student is then given scenarios and asked to select possible reasons for failure.

Task 5   The student works with the Practice Computer System following the procedures in an Instruction Sheet to create a floppy disk that can be used to "rescue" a lost password. Information is provided on the Instruction Sheet about password policies, and also about floppy disks and their role in modern computer systems.
Finally the student shuts down the computer.

Note: In tasks 3 and 5, the student is asked to restart the Practice Computer System and to override the "auto-revert" software so that work already completed is preserved. If this is not done, the computer will restart in the "as shipped" configuration and some earlier work will have to be repeated.

2.1a   b

The button shown restarts the current lesson from the beginning.

2.2a   The options should be selected as follows:
☐   Extended storage
☑   Long term storage
☑   Temporary storage
☐   Intermittent storage

Long term and temporary storage are the most common forms.

2.2b | c |

Random Access Memory (RAM) does not hold information for the long term..

2.2c | d |

The hard drive communicates with other subsystem devices using wires in cables. The other devices use tracks on the motherboard.

2.2d   The options should be selected as follows:
☑   CPU   ☐   Hard Drive
☑   Chipset   ☑   RAM
☑   PCI Card   ☑   Battery

The hard drive is the only item on the list that you would not find mounted on a motherboard.

2.2e | False |

Electricity is passed on to some components from the motherboard or from other system components

2.3a | d |

Stand by mode does not protect unsaved work from loss during a power supply disruption

2.3b | b |

Hibernate mode, if enabled, is accessed from the Turn Off Computer window.

2.3c | a |

ACPI (Advanced Configuration and Power Interface) is the correct choice.

2.3d | d |

The shortcut is to hold down the Windows logo key and press the L key.

2.4a   d

cmd.exe is the command prompt, loaded from the Safe Mode with Command Prompt option.

2.4b   a

You are using the correct video driver, but it is probably configured incorrectly.

2.4c   c

The situation suggests that the problem is with a network driver.

2.4d   No

Different operating systems create different ERDs (Emergency Recovery Disks).

2.5a The options should be selected as follows:
- ☑ **Jz753951** expires after 6 weeks
- ☐ **Ann145xx** expires after 1 week
- ☐ **JZ753951** expires after 1 year
- ☐ **John_Smith** expires after 6 weeks

The others are too short an expiry, too long an expiry, too difficult to memorize, or too simple to guess.

2.5b   c

The process updates the disk with the newly chosen password.

Assignment 3   *Internal Components*

Task 1

In this task the student explores the steps that should be taken to prepare for the disassembly of a PC and learns to recognize various tools that are typically used in an activity such as this.
The material is presented by the Interactive Media Instructor.

Task 2

The student continues to use the Interactive Media Instructor to study the detailed steps and techniques required to disassemble a PC. During this process the student discovers some frequently used acronyms and abbreviations and learns to recognize and name major internal components and connections.

Task 3

The student works with the Practice Computer System following the procedures in an Instruction Sheet to remove the computer casing and set up an antistatic working environment (repeating work carried out in Assignment 1) prior to working inside the computer.

Task 4

The student performs a detailed examination of the PC internal components and connections, recording information as directed by the Instruction Sheet. During this process the student continues the discovery of frequently used acronyms and abbreviations and learns to recognize and name more internal components and connections. Finally the student refits the computer casing and shuts down and restarts the computer to check that it is operating normally.
Note: A secondary use can be made of the record. It can be used by the student in subsequent Assignments to fix simple startup problems caused by missing components or incorrect connections resulting from work carried out by a previous student.

Task 5

The student returns to the Interactive Media Instructor to study the steps required preparatory to assembling a PC.

Task 6

The student continues to use the Interactive Media Instructor to study the detailed sequence of steps and techniques required to assemble a PC.

3.1a   The options should be selected as follows:

☑ Planning and   ☑ Recording configuration
    preparation   settings and saving data
☑ The reasons for   ☑ Safety procedures
    doing it
☑ Space in which to work

All of the points should be considered.

3.1b |d|

The chip pullers shown are used to remove RAM chips from sockets.

3.1c   The options should be selected as follows:

☐ Bandwidth
☑ Voltage
☐ Power
☑ Resistance

A multimeter measures voltage (Volts) and resistance (Ohms). It can also measure electrical current (Amperes).

3.2a |b|

To preserve the IRQ settings you should, where possible, replace expansion cards in the slot from which they were removed.

3.2b |b|

A sound card has easily identifiable connections on the front.

3.2c |d|

The red wire indicates pin 1.

3.2d |False|

The ATX-style connector is the newer. The older style, the AT, is in fact two connectors side-by-side.

3.2e |a|

An IDE connector is commonly used on the motherboard to connect CD-ROM drives, hard drives, and floppy drives.

3.4a [a]

ATX style connectors have twenty wires and are also known as P1 connectors.

3.4b [b]

The DVD drive and hard drive use either molex or SATA style power supply connectors; the floppy drive connector is a mini-molex.

3.4c [c]

Parallel ATA is a type of IDE drive.

3.4d [c]

PCI (Peripheral Component Interconnect) is a type of expansion slot.

3.4e [b]

Battery failure is indicated if the Windows clock constantly resets to January 1st.

3.4f [Yes]

If you are unable to get the practice computer system to operate normally you should inform your instructor.

3.5a [d]

Keying is used to modify the shape of connectors so that it is very difficult to connect them incorrectly.

3.6a [b]

Plastic spacers are located between the motherboard and case. These prevent them from coming into contact and causing a short-circuit.

3.6b [c]

The motherboard is seated on plastic spacers.

3.6c [a]

The red wire identifies the location of pin 1

Assignment 4   *Windows XP*

Task 1   The student works with the Practice Computer System following the
                              procedures in an Instruction Sheet to customize the interface between the
                              keyboard and the practice computer system. This demonstrates how the
                              Windows XP Operating System provides help and support to carry out such
                              tasks. The task also allows the student to become familiar with and practice
                              basic Windows skills.

Task 2   The student is directed to the textbook to read about the Windows User
                              Interface. The material uses terminology and naming conventions that are
                              required knowledge for PC technicians.

Task 3   The student works with the Practice Computer System following the
                              procedures in an Instruction Sheet to continue practicing basic Windows
                              skills and to learn about the role and use of the Windows Control Panel. The
                              student is also introduced to the concept of, and uses, Windows context-
                              sensitive help.

Task 4   The student uses the Interactive Media Instructor to examine the main
                              graphical Windows tools used to manage the Operating System.

Task 5   The student works with the Practice Computer System following the
                              procedures in an Instruction Sheet to investigate the role and use of Device
                              Drivers.

Task 6   In this task the student is referred to the textbook to read material
                              identifying the importance of maintaining and optimizing a Windows
                              installation.

4.1a   a

Drag the Repeat delay slider to the right or left.

4.1b   The options should be selected as follows:

☐   Exit

☑   Cancel

☐   Apply

☑   OK

The Cancel and OK buttons quit the properties dialog box.

4. 1c   The options should be selected as follows:

☐ | Exit |
☐ | Cancel |
☑ | Apply |
☑ | OK |

Apply and OK accept the configuration changes that have been made.

4.2a | c |

The desktop is your primary interface to the computer.

4.2b | d |

The three-digit set at the end of a file name is called the extension.

4.2c | No |

The Recycle Bin default is 10% of the drive space, in this case 4GB.

4.3a   The options should be selected as follows:
☐   Traditional View
☑   Classic View
☐   Icon View
☑   Category View

Classic View and Category View are the two names used.

4.3b | a |

The different views are called Tabs.

4.3c | d |

This description of pointer speed is found by alternate clicking it in the Mouse Properties window, and selecting What's This?

4.4a | d |

The Data function addresses a user's need to easily manage and store files.

4.4b | b |

The Device Manager tool is used to check and install hardware.

4.4c $\boxed{\text{d}}$

The Display Properties page does not by default have a Network tab.

4.4d $\boxed{\text{a}}$

A shortcut is a GUI link to the location of a stored program.

4.4e $\boxed{\text{No}}$

Items can easily be added as and when needed.

4.4f $\boxed{\text{b}}$

Copy a shortcut by holding down the Ctrl (Control) key and dragging the item to the new location.

4.5a $\boxed{\text{a}}$

Device Drivers are small programs.

4.5b $\boxed{\text{b}}$

Driver Signing.

4.6a $\boxed{\text{d}}$

None of these are absolutely necessary. Updates are available for all the latest Windows OS. You do not have to have an Internet connection . updates can be managed from a network server.

4.6b $\boxed{\text{c}}$

Autorun starts immediately a CD_ROM is inserted and searches for a file called Autorun.

4.6c $\boxed{\text{c}}$

Most applications are provided with their own uninstall programs and using these is the preferred technique.

Assignment 5   *The Motherboard and CMOS Settings*

Task 1

In this task the student uses the Interactive Media Instructor to explore the components found on the motherboard.

Task 2

The student continues the Interactive Media Instructor tour of the motherboard to examine system buses.

Task 3

The Interactive Media Instructor continues with the student studying the role and characteristics of the BIOS.

Task 4

The student follows an Instruction Sheet to work with the Practice Computer System. The students creates a problem with the floppy drive connection and observes how the POST startup handles the error. The student is introduced to the function and navigation of the CMOS Setup Utility program.

Task 5

The student is directed to the textbook to read about floppy disk drive installation and learns about drive letter allocation.

Task 6

In this task the student works with the Practice Computer System and an Instruction Sheet and examines and records detailed CMOS configuration settings and system values.

5.1a   b

All motherboards have at least two to connect hard disks and other drives.

5.1b   d

Universal Serial Bus

5.1c   b

The PCI (Peripheral Component Interconnect) bus slot allows for Plug and Play compatibility.

5.2a   c

USB devices can be daisy-chained together.

5.2b d

ISA (Industry Standard Architecture) was introduced for the first generation of PCs.

5.3a d

The Basic Input Output System (BIOS) provides the link between the hardware and the software in the system.

5.3b c

CMOS (Complimentary Metal-Oxide Semiconductor) is not a system resource.

5.3c b

IRQs (Interrupt Requests) are issued by devices that require attention.

5.3d c

The block of RAM in a protected location is used so that the device driver will work.

5.3e a

A conflict occurs when two devices try to use the same IRQ.

5.3f a

Flash BIOS can be updated by software so that an old motherboard can be upgraded to use newer technologies.

5.4a b

The POST process will stop because an error condition was detected for an expected setting held in CMOS.

5.4b c

The supervisor password is required.

5.4c d

The F11 key is not normally used to navigate between the CMOS Setup Utility screens.

5.4d d

The floppy drive power leads comprise one red, one yellow, and two black wires.

5.5a ☐d☐

A 34-pin ribbon cable with a seven wire twist (and three connectors).

5.5b ☐d☐

A non-bootable floppy disk in the A: drive will cause the error message.

5.5c ☐Yes☐

It is perfectly acceptable in this case - no damage will be done.

5.5d ☐No☐

It would be absolutely wrong to proceed. Connecting the power lead incorrectly will destroy the floppy drive.

5.6a ☐b☐

The Pause key interrupts the process.

5.6b ☐a☐

Depending upon the type of motherboard installed, the Standard CMOS Features page, or the Main page, displays the Total Memory.

5.6c ☐b☐

Depending upon the type of motherboard installed, the PC Health Status page, or the Hardware Monitor page, has this control setting.

5.6d ☐No☐

The CMOS settings are actual values that are recorded during the POST process.

Assignment 6   *Starting Windows*

Task 1   The student starts by reading from the textbook about the differences
                              between modern Windows operating systems (from Windows 98 onwards)
                              in respect of the boot process and basic functionality.

Task 2   The student works with the Practice Computer System following the
                              procedures in an Instruction Sheet to create an MS DOS Startup disk. The
                              student is introduced to the concept of disk formatting and to DOS
                              commands.

Task 3   The student works with the Practice Computer System following the
                              procedures in an Instruction Sheet to access the Command Line Interface
                              and learn common terminology and syntax. The student uses commands to
                              examine folder contents and reads from the on-line help manuals provided
                              with the operating system.

Task 4   Continuing to work with the Practice Computer and an Instruction Sheet, the
                              student executes the CHKDSK utility and records the resultant diagnostics.

Task 5   Finally, the student works with the Practice Computer System and an
                              Instruction Sheet, executing commands which provide practice in the skills
                              required for this Command Line Interface.

6.1a   b

The system partition.

6.1b   d

A dual-boot system.

6.1c   c

The BOOT.INI file contains the instruction for which operating system to
load.

6.1d   a

All the user accounts on a Windows 2000 / XP system are grouped in one
set of folders.

6.1e   d

Driver rollback is used to return a system to using the previous driver.

6.2a ☐d☐

Disks are prepared for use by the High-level Format process.

6.2b ☐d☐

The option that Windows XP uses is FAT (File Allocation Table).

6.2c ☐b☐

The largest file (at approximately 93, 000 bytes) is COMMAND.COM.

6.3a ☐d☐

The name of the environment is the command shell.

6.3b ☐d☐

Option D is correct. The Recovery Console is not available in Windows 98 nor in Windows NT.

6.3c   The options should be selected as follows:
- ☑   Start | Programs | Accessories | Command Prompt
- ☐   Start | Programs | System Tools | Command Prompt
- ☑   Start | Run | cmd | OK
- ☐   Start | Open | Accessories | Command Prompt

The command prompt can be accessed using these two methods.

6.3d ☐a☐

The cd command (Change Directory) command achieves this.

6.3e ☐d☐

XCOPY copies files and directories, including subdirectories.

6.3f ☐b☐

Error code 2 is returned if the operation is cancelled by the user pressing CTRL+C.

6.3g ☐c☐

Choices are enclosed between braces and separated by the pipe character.

6.4a ☐a☐

The /F command switch is the only one shown that is not exclusive to disks formatted as NTFS.

6.5a   The options should be selected as follows:

☑ Test.txt   ☑ Test program
                                   January 26
                                   2004.exe

☑ My Test   ☐ Test program
    Document.doc   01/26/2004.exe

☑ Test$$.exe   ☑ My_Test_Document.doc

The forward slash . / . (properly called a solidus) is a prohibited character.

6.5b   ‖No‖

You cannot change the location of a file with the RENAME command.

6.5c   ‖a‖

The /-Y switch (the default) prompts before overwriting.

6.5d   ‖d‖

The dir/w option displays files stretched horizontally across the screen in wide format.

Assignment 7   *Motherboard Components*

Task 1   The student works with the Practice Computer System following the procedures in an Instruction Sheet to access commonly used system utilities. The student records information that would typically be required prior to considering upgrading components located on the motherboard.

Task 2   The student is directed to the written material in the textbook to read about the features and characteristics of various types of motherboards. The student reads further to recognize the steps involved in choosing, and then installing, a new motherboard.

Task 3   The student continues reading from the textbook to investigate the varieties of chipsets available, and their features and characteristics.

Task 4   The student uses the Interactive Media Instructor to discover the major functions that are the responsibility of the CPU.

Task 5   The student returns to the textbook material to read about the factors to be considered in the choice, installation, and testing of a CPU.

Task 6   The student is provided with an Instruction Sheet and video of the removal and reinstallation of motherboards and CPUs. This work should **NOT** be carried out on the Practice Computer System because it is considered impractical in the normal classroom environment.

7.1a   c

The General tab contains this information.

7.1b   b

Start | alternate click My Computer | Manage accesses the Computer Management Window.

7.1c   b

The IDE ATA/ATAPI Controllers section expands to reveal the entry for the Primary IDE Channel.

7.1d   d

Answer B does not specify the /p switch necessary to produce a report.

7.2a   b

The form factor defines the particular positioning of components.

7.2b [d]

The AXT is not a type of motherboard.

7.2c [b]

ATX motherboards incorporate soft power which enables software to turn the PC off.

7.2d   The options should be selected as follows:
- ☐ Monitor
- ☑ Case
- ☑ Power supply
- ☐ Hard disk drive

The case and power supply are different. The monitor and hard disk are components not normally affected by the type of motherboard fitted.

7.2e [d]

Xbit is not the name of a popular brand of motherboard.

7.2f [b]

SDRAM is the older technology.

7.2g [b]

The screws and standouts will have to be made to fit as best as possible.

7.2h [No]

The LEDs will not be damaged, they just will not work.

7.3a   The options should be selected as follows:
- ☑ Helps the CPU work with RAM
- ☐ Handles some expansion devices and mass storage devices
- ☐ Normally sits on the motherboard between the expansion slots and the EIDE and FDD controllers
- ☑ Normally has its own heat sink

The Northbridge chip helps the CPU to work with RAM and normally has its own heatsink.

7.3b [b]

The correct software drivers are needed.

7.3c [d]

The type of CPU. FSB stands for Front Side Bus, and is the data path on the motherboard between the CPU and main memory.

7.4a   The options should be selected as follows:
☑ Arithmetic logic unit   ☑ Registers
☑ Floating point unit   ☑ Control circuitry
☑ Onboard cache

All of items are features of a CPU.

7.5a   The options should be selected as follows:
☑ CPU fan   ☑ RAM
☑ Case fan   ☑ Case
☑ Motherboard

7.5b   No

Their shapes are different.

7.5c   Yes

By using an adapter.

7.5d   b

Slot 1 and Slot A CPUs share mechanical similarities.

7.5e   The options should be selected as follows:
☑ Cache sizes   ☑ Clock-doubling features
☑ CPU speeds   ☐ Dip switch settings
☐ Jumper settings

Cache sizes, CPU speeds and clock-doubling features are very useful
facts to know without needing to refer to a manual.

7.5f   No

There are many considerations and reasons why not. In particular, upgrading
the CPU may require replacing many other components.

Assignment 8   *Memory*

Note: The student should not start this Assignment unless there is enough time to complete it in one session.

Task 1   The student works with the Practice Computer System and an Instruction Sheet to examine and record memory performance.

Task 2   The student uses the Interactive Media Instructor to explore the role of memory and the page file.

Task 3   The student works with the Practice Computer System and an Instruction Sheet to carry out the steps necessary to install a memory module.

Task 5   The student repeats the steps in Task 1 to observe the effect of installing the additional memory.

Task 6   The student works with the Practice Computer System and an Instruction Sheet to remove the previously installed memory module. Finally the student refits the computer casing and shuts down and restarts the computer to check that it is operating normally.

Task 7   The student is directed to the textbook for an appreciation of simple troubleshooting tips that can be used to isolate problems with RAM.

8.1a $\boxed{\text{b}}$

Task Manager can be used on your computer to assess the activity of running processes.

8.1b $\boxed{\text{c}}$

The memory values are expressed in kilobytes.

8.1c $\boxed{\text{d}}$

The file is named WIN386.SWP.

8.1d $\boxed{\text{a}}$

Disk thrashing occurs when programs are being constantly moved between RAM and a swap file.

8.2a   a

Nanoseconds (one billionths of a second) are used to specify memory speed in older memory modules.

8.2b   d

The time taken for RAM to provide requested data to the memory controller.

8.2c   a

An area of the hard disk used as temporary storage space when the RAM is full.

8.2d   c

CAD (Computer Aided Design) requires a large amount of RAM.

8.3a   b

Memory modules have a notch on one edge.

8.4a   b

The motherboard manual is the definitive source of information.

8.4b   d

Visually inspecting the motherboard.

8.4c   c

The locking tabs should be open to accept the new memory.

8.4d   b

You should never touch the bottom edge. This is the edge with the gold connectors.

8.4e   Yes

8.6a   b

The motherboard manual is the definitive source of information

8.6b   c

Press the locking tabs to the open position.

8.6c   a

Place the module in anti-static packaging.

8.6d | Yes |

8.6e | d |

Removing the 32MB and 64MB modules allows enough memory to continue to operate Windows XP Professional..

8.7a | d |

Parity errors with different addresses is not likely to be a RAM problem.

Assignment 9 *Monitors*

Task 1   The student is introduced to the topic of Display Technologies by the Interactive Media Instructor.

Task 2   The student uses the Interactive Media Instructor to identify the components used in Cathode Ray Tube monitors. The student also studies factors to be considered when choosing a CRT monitor and why they should only be worked on internally by qualified personnel.

Task 3   The student works with the Practice Computer System following the procedures in an Instruction Sheet to examine the front panel controls of the Practice Computer System monitor, experimenting with various settings to see their effect.

Task 4   The student works with the Practice Computer System following the procedures in an Instruction Sheet to examine the Windows XP display properties, experimenting with various settings to see their effect.

Task 5   The student revisits the Interactive Media Instructor and compares the features and characteristics of CRT and LCD (Liquid Crystal Display) technology.

Task 6   The student is directed to the textbook to explore how LCD technology works.

Note: In task 4, the student is asked to restart the Practice Computer System and to override the "auto-revert" software so that work already completed is preserved. If this is not done, the computer will restart in the "as shipped" configuration and some earlier work will have to be repeated.

9.1a   No

Major factors to consider when deciding on the suitability of a monitor are size and quality of display, not price.

9.2a   c

A vacuum tube is enclosed in glass.

9.2b   d

Most color CRT monitors have 3 electron guns.

9.2c   b

A group of colored phosphors is called a pixel

9.2d   b

The phosphor glow begins to fade almost immediately.

9.2e   a

Monitors on server computers are typically used only occasionally. Smaller monitors are quite suitable for use in most circumstances.

9.2f   b

A small monitor at a resolution that is too high will have this effect.

9.2g   b

A 0.25 mm dot pitch (the space between pixels) would produce the sharpest image.

9.2h   d

80 Hertz is the fastest of the options and will produce less flicker. Interlacing increases flicker markedly.

9.3a   a

Degaussing a monitor eliminates the magnetic filed that builds up over time.

9.3b   c

DPMS (display power-management signalling) will consume less power. It will also emit less radiation and generate less heat during its lifetime, but that is not the primary purpose.

9.4a   Yes

This is the effect of the change.

9.4b   Yes

This is the effect of the change.

9.4c   No

This definition applies to the vertical refresh rate.

9.5a   c

Passive matrix is used in lower end laptop computers and has a restricted viewing angle. (Active matrix analog and Active matrix are different names for a single type.)

9.5b   d

LCD monitors do not have phosphors that glow and fade.

9.5c   d

LCD monitors typically consume around 5 Watts.

9.5d   a

Scaling allows an LCD monitor to work at a resolution different to its native resolution.

9.6a   b

The fundamental concept upon which LCD technology is based is the polarity of light.

9.6b   a

The liquid crystal will change its orientation to match the direction of the electrical charge.

9.6c   d

Active matrix is another name for Thin Film Transistor.

9.6d   b

The liquid crystal is the middle layer.

9.6e   c

Use the Windows XP display applet to customize settings.

Assignment 10 *Managing Files, Folders, and Software*

Task 1   The student works with the Practice Computer System following the procedures in an Instruction Sheet to install a software application program and create a record of the installation.

Task 2   The student moves to this textbook-based task to read about software installation.

Task 3   The student uses the Interactive Media Instructor to discover the role of Windows Explorer in managing folders and files.

Task 4   The student works with the Practice Computer System following the procedures in an Instruction Sheet to create and manage folders and files.

Task 5   The student follows an Instruction Sheet procedure to remove application software and recognizes the associated precautionary and administrative responsibilities**.**

Task 6   The student returns to the textbook to study a summary of the software removal process and learn also the implications of license agreements.

Task 7   The student continues reading from the textbook to study the features and characteristics of the Windows NT / 2000 / XP family of Operating Systems.

Note: In task 1, the student is asked to restart the Practice Computer System and to override the "auto-revert" software so that work already completed is preserved. If this is not done, the computer will restart in the "as shipped" configuration and some earlier work will have to be repeated.

10.1a b

Adobe Acrobat Professional is used by many businesses and organizations.

10.1b c

The software installation will be unsuccessful unless it is installed as Instructed.

10.1c ☐d

Many applications interact and share data files so installing to the
recommended directory is preferable.

10.1d ☐d

Record keeping is very important and should be completed as soon as it
is known that the installation has been successful.

10.2a ☐b

The feature that Windows supports to do this is Autorun.

10.2b The options should be selected as follows:
- ☑ Location of installed programs
- ☐ Acceptance of License Agreement
- ☑ Installation of certain software components

If you decline to accept the terms of the license agreement the installation
program will terminate.

10.3a ☐c

Network drives.

10.3b ☐c

Configuring the properties associated with files and folders involves setting
file type associations.

10.4a The options should be selected as follows:
- ☑ They can all be contained in a folder or a folder within a folder
- ☐ They all have common file name extensions
- ☑ They can all be copied using Explorer copy and paste commands
- ☑ They can all be moved by drag and drop to another folder

The items will have different file name extensions to determine which
applications are launched by opening them.

10.4b The options should be selected as follows:
- ☑ Tree
- ☐ Bush
- ☐ Interleaf
- ☑ Root

Tree and root are both terms used to describe how the contents of a drive are
organized.

10.4c $\boxed{\text{c}}$

Four - Motherboard, PSU, CPU, and HDD Information.

10.4d $\boxed{\text{d}}$

The Target folder is where a file is moved to (from a Source folder). Another name for target folder is Destination folder.

10.4e $\boxed{\text{b}}$

Files deleted from another computer across a network connection are not moved to a recycle bin.

10.5a The options should be selected as follows:
- ☑   That a backup of critical data and information exists
- ☑   That the computer is operating normally
- ☑   That you are logged onto an account with Administrator privileges
- ☑   That the removal method chosen is the preferred one

All of the options listed are important.

10.5b $\boxed{\text{d}}$

The last account name that used a program or application is not available from the Add or Remove Programs utility.

10.5c The options should be selected as follows:
- ☑   An entry for the application in the Add or Remove Programs utility
- ☑   Desktop icon
- ☑   Start menu shortcut for the application
- ☐   The Program Files folder

The Add or Remove Programs or uninstall utility does not always remove the folders that were created when the application was first installed.

10.6a $\boxed{\text{No}}$

The terms of the license typically require you to remove the software from the original computer before installing it and using it on another.

10.7a $\boxed{\text{b}}$

32-bit architecture has been available for PCs since the launch of the 80386 CPU in 1985.

10.7b $\boxed{\text{c}}$

Symmetric multiprocessing.

10.7c $\boxed{d}$

Windows 2000 and XP both support FAT 16, FAT 32 and NTFS.

10.7d $\boxed{a}$

Transaction logging determines incomplete transactions, such as file saving, and takes action to recover from errors.

10.7e $\boxed{b}$

Users can create groups that they can then manage.

10.7f $\boxed{d}$

Modify.

10.7g The options should be selected as follows:
- ☑ Read & execute
- ☑ Modify
- ☑ Full Control
- ☐ Read

These permissions are required for a program to be run.

Assignment 11 *Protecting the System*

Note: The student should not start this Assignment unless there is enough time to complete it in one session

Task 1	The student uses the Interactive Media Instructor to discover the nature of viruses and the threat they pose.
Task 2	The student works with the Practice Computer System following the procedures in an Instruction Sheet to explore Windows XP Restore Points and then create one.
Task 3	The student works with the Practice Computer System following the procedures in an Instruction Sheet to install, configure, and test antivirus application software.
Task 4	The student is directed to the textbook to explore common virus types and identify the features of antivirus programs.
Task 5	The student works with the Practice Computer System following the procedures in an Instruction Sheet to rollback the system to the restore point set earlier in the Assignment.
Task 6	The student returns to the textbook for an appreciation of the different recovery tools provided by different versions of Windows, and discovers how they can be used to prepare for problems.

Note: In tasks 3 and 5, the student is asked to restart the Practice Computer System and to override the "auto-revert" software so that work already completed is preserved. If this is not done, the computer will restart in the "as shipped" configuration and some earlier work will have to be repeated.

11.1a $\boxed{\text{b}}$

Viruses will cause a problem in all cases, but especially on networked computers where the risk of infecting other computers is greatest.

11.1b The options should be selected as follows:
- ☑ Use Virus detection and removal software
- ☑ Limit Internet access as much as possible
- ☐ Use Virus detection and removal software, and prohibit Internet access
- ☐ Prohibit access to external data

It is not practical to prohibit access entirely to the Internet and to external data.

11.1c ☐c☐

The user is usually given a choice of cleaning (if possible) or deleting the file.

11.2a The options should be selected as follows:
- ☑ When certain programs are installed
- ☐ Every time you log on
- ☐ During the log off process
- ☑ When a driver is installed

Restore points are created automatically when some programs are installed, and at the time of significant events such as a driver being installed.

11.2b ☐No☐

System Restore does not affect or change personal data (as defined by Windows XP).

11.2c ☐d☐

System Restore points created automatically are also called system checkpoints.

11.2d ☐No☐

System Restore can be turned off for all drives from the System Restore page and off or on for all drives except the system drive.

11.3a ☐d☐

A pre-installation scan checks only that there are no potential threats to the installation.

11.3b The options should be selected as follows:
- ☑ Installation tips
- ☑ Compatibility issues
- ☑ Usage tips
- ☐ Full user manual
- ☑ Late breaking news

A user manual is unlikely to be included in such a readme file.

11.3c ☐a☐

An antivirus application usually detects this file and names it EICAR Test String.

11.4a ⎡c⎤

A worm does not infect other files. It replicates by making copies of itself on other systems on a network.

11.4b ⎡d⎤

A boot sector virus is detected by comparing a drive's boot sector with a standard boot sector.

11.4c ⎡a⎤

The code pattern identified for a virus is known as its signature.

11.5a ⎡b⎤

There are three types: system checkpoints, manual restore points, installation restore points.

11.5b ⎡Yes⎤

11.6a ⎡d⎤

Windows NT provided the basis for the application.

11.6b ⎡No⎤

The ERD (Emergency Repair Disk) cannot be used to start the computer.

11.6c ⎡c⎤

From the Windows XP CD by running Setup and Repair.

Assignment 12 *The Control Panel*

Task 1   The student uses the Interactive Media Instructor to discover the role of the Control Panel.

Task 2   The student uses the Practice Computer System and follows an Instruction Sheet procedure to examine and experiment with the Control Panel - Display settings.

Task 3   The student is directed to the textbook to explore the features of the Control Panel and the nature of applets.

Task 4   The student uses the Practice Computer System and follows an Instruction Sheet procedure to examine and experiment with the Control Panel – Add or Remove Programs.

Task 5   The student uses the Practice Computer System and follows an Instruction Sheet procedure to examine and experiment with the Control Panel – System settings.

Task 6   The student uses the Practice Computer System and follows an Instruction Sheet procedure to examine and experiment with the Control Panel – Folder options.

Task 7   The student uses the Practice Computer System and follows an Instruction Sheet procedure to examine and experiment with the Control Panel – Accessibility options.

Task 8   The student uses the Practice Computer System and follows an Instruction Sheet procedure to examine and experiment with the Control Panel – Administrative Tools Event Viewer.

Task 9   The student uses the Practice Computer System and follows an Instruction Sheet procedure to examine and experiment with the Control Panel – Local Security Settings.

12.1a The options should be selected as follows:

☑	Setting up an Internet connection	☑	Adjusting display properties
☑	Adding and removing hardware	☑	Installing fonts
☑	Making network connections	☑	Adding or removing programs

All of items are accessible from one or other of the Control Panel icons.

12.2a c

The phenomena is named burn-in and is caused by the constant bombardment of electrons eroding the internal surface of the CRT.

12.2b d

The Appearance tab allows each element to be customized for background and text colors.

12.3a c

The extension .cpl is used to identify programs as Control Panel applets..

12.4a a

Games is a subcomponent of Accessories and Utilities.

12.5a d

You must download the update again.

12.6a c

Common tasks appear as hyperlinks in the left panel.

12.6b d

The practice computer system has Wordpad set as the program to run when a file with a .doc extension is opened.

12.6c No

Offline Files is not available with Fast User Switching enabled.

12.7a b

Sticky keys provides this function.

12.8a a

Microsoft Management Console.

12.8b a

Network is not the name of a standard Windows XP event log.

12.8c d

Service startup events are reported, but in the category that they fall, not in their own right.

12.9a b

Enforce password history can be set with a value of 1 or greater to make
users choose new passwords.

Assignment 13 *The Computer and Multiple Users*

Task 1   The student is directed to the textbook to discover the role of User Accounts and Groups and how they are managed.

Task 2   The student uses the Practice Computer System and follows an Instruction Sheet procedure to create and manage user accounts.

Task 3   The student uses the Practice Computer System and follows an Instruction Sheet procedure to experiment with the settings that control the level of access to files and folders.

Task 4   The student returns to the textbook to study a comparison of the NTFS4 and NTFS5 file systems.

Task 5   The student continues reading from the textbook to make a comparison between different network structures – Client / Server, peer-to-peer, and domain-based.

Task 6   The student continues reading from the textbook to investigate the nature of resource sharing in a network environment.

13.1a |b|

A user account is the most basic element of Windows security.

13.1b |c|

Checking this option requires users to press Ctrl-Alt-Del before logging on.

13.1c |d|

The Users and Passwords applet in Windows 2000 was replaced in Windows XP by the User Accounts applet.

13.2a |c|

A domain is so defined.

13.2b |b|

A limited account can access programs installed by another user so that they can be run.

13.2c The options should be selected as follows:
☑   The contents of the desktop for the account to be deleted
☑   The contents of the "My Documents" folder for the account to be deleted
☐   The e-mail messages for the account to be deleted
☐   The Internet Favorites for the account to be deleted

The desktop contents and My Documents folder can be saved.

13.3a [b]

A user profile is so defined.

13.3b [b]

Only drives formatted as NTFS can take advantage of the private folders feature.

13.4a [d]

Access Control Lists (ACL).

13.4b [No]

NTFS5 Encryption makes files unreadable - it does not hide them.

13.5a [b]

A client makes such requests, to which a server responds.

13.5b The options should be selected as follows:
☑   Read-only
☑   Full Access
☐   Read & Execute
☑   Depends on password

Read & execute is not a peer-to-peer network permission.

13.5c [c]

Domain-based networks store a database of user names and passwords, allowing log on from any computer in the domain.

13.5d [a]

The file, folder, and printer sharing service is installed with Windows XP by default, but not enabled (activated).

13.6a [b]

Sharing a folder modifies its icon by showing it with a hand.

13.6b d

The Network permissions set at Full Control will permit precise control to be exercised using NTFS.

13.6c c

A mapped drive is available as long as both computers are active on the network, and looks like any other drive on the local system.

13.6d d

The syntax shown will allow access to the Technical Data resource (folder) on the Development system (computer).

Assignment 14 *Hard Disk Drives*

Note: The student should not start this Assignment unless there is enough time to complete it in one session

Task 1

The student uses the Interactive Media Instructor to discover the major electro/mechanical features of hard disk drives.

Task 2

The student uses the Practice Computer System and follows an Instruction Sheet procedure to examine and record disk configuration information.

Task 3

The student uses the Practice Computer System and follows an Instruction Sheet procedure to install a hard drive. The student is provided with one of two possible types of hard drive and is told how to recognize each type, and then to follow the appropriate instructions. The student is also told to study the alternate instructions because there are questions in the assignment about both types

Task 4

The student uses the Practice Computer System and follows an Instruction Sheet procedure to use the Windows XP disk management tool to prepare the new disk for use. The student is also introduced to the concept of disk partitioning and associated terminology.

Task 5

The student uses the Practice Computer System and follows an Instruction Sheet procedure to remove the hard drive.

Note: In tasks 2, 3 and 4, the student is asked to restart the Practice Computer System and override the "auto-revert" software so that work already completed is preserved. If this is not done, the computer restarts in the "as shipped" configuration and earlier work will have to be repeated.

14.1a b

Hard disk platters are commonly manufactured from glass and usually coated with iron oxide or a thin metal film that can be magnetized.

14.1b The options should be selected as follows:
☑   5,400rpm
☑   7,200rpm
☐   5,400 Hz
☐   7,200 Hz

Disk rotation speeds are measured in rpm (revolutions per minute) not in Hz (cycles per second). Common disk speeds are 5,400 rpm or 7,200 rpm.

14.1c ☐c

A cushion of air caused by the speed that the disk rotates, keeps the heads suspended above and below the platters.

14.2a ☐d

SCSI (Small Computer Systems Interface) drives are relatively expensive, but they are fast.

14.2b ☐a

The partitions and drives are color-coded.

14.2c ☐c

Logical partition is not a term that is used with PC disks.

14.2d The options should be selected as follows:
- ☑ Primary or secondary
- ☑ Master or slave
- ☐ EGA or VGA
- ☐ A or B

Primary and secondary, and master and slave, are used in combination to identify specific disks.

14.3a ☐b

Two controllers, each with a two-connection ribbon cable.

14.3b ☐a

The automatic detection of the master/slave status of a hard drive is by its position on the cable.

14.3c ☐d

Hard drive covers should not be removed, and they should not be jarred or subjected to sudden shock.

14.4a ☐c

Dynamic disks can be used to create fault tolerant systems.

14.4b ☐Yes

The wizard gives you the choice to format the disk.

14.4c ☐c

Fault-tolerant systems are as described.

14.4d $\boxed{a}$

NTFS provides these features - GUID (Globally Unique Identifier) is not a file system, it is a partition table.

14.5a $\boxed{b}$

The unit that has just been installed.

14.5b $\boxed{Yes}$

Assignment 15   *The Windows Registry and Device Installation*

Task 1   The student uses the Interactive Media Instructor to discover the role of the
                               registry.

Task 2   The student continues with the Interactive Media Instructor to examine the
                               precautions needed prior to making registry changes.

Task 3   The student works with the Practice Computer System following the
                               procedures in an Instruction Sheet to make a backup copy of the registry.

Task 4   The student works with the Practice Computer System following the
                               procedures in an Instruction Sheet to make a change to the registry and test
                               the result. In the course of making these changes the student encounters the
                               terminology and naming conventions that the registry uses.

Task 5   The student uses the Interactive Media Instructor to explore the structure of
                               the registry.

Task 6   The student is directed to the textbook to recognize the role that the registry
                               plays in device installation.

                               Note: In tasks 3 and 4, the student is asked to restart the Practice Computer
                               System and to override the "auto-revert" software so that work already
                               completed is preserved. If this is not done, the computer will restart in the
                               "as shipped" configuration and some earlier work will have to be repeated.

                               15.1a The options should be selected as follows:
                               ☑ Ease of administration   ☑ Security
                               ☑ Structured information   ☐ Changes are simple to
                                                                        make
                               ☑ Flexibiity to store all
                                    types of data

                               Changes are not simple to make.

                               15.1b The options should be selected as follows:
                               ☑ Control Panel   ☑ System Information
                               ☐ Notepad   ☑ Management consoles
                               ☑ Event Viewer   ☐ Windows Explorer

                               Notepad and Windows Explorer are not registry interfaces.

15.1c ☐a☐

Extracting information about which device drivers to load is one of the functions of the Windows Kernel.

15.3a The options should be selected as follows:
☐   Windows
☑   Boot Files
☐   My Documents
☑   Registry

The System State selection includes the registry and boot files.

15.4a ☐d☐

The registry is a database of configuration information.

15.4b ☐b☐

REG_SZ is the fixed-length text string data type.

15.4c ☐a☐

The HKEY_LOCAL_MACHINE predefined key contains information such as dates and versions of the BIOS.

15.4d ☐b☐

The definition describes a hive.

15.5a ☐c☐

The divisions of the register are called subtrees - sometimes also called root, or predefined keys.

15.5b ☐a☐

The HKEY_CLASSES_ROOT subtree (or root or predefined key) contains this information.

15.5c ☐d☐

The 4 byte REG_DWORD data type is commonly used for this type of information.

15.5d ☐a☐

The HARDWARE subkey (a volatile subkey) gathers information from the boot up process.

15.6a ⬚Yes⬚

They work just fine!

15.6b ⬚d⬚

Copy two new files to the startup floppy and modify the existing
CONFIG.SYS and AUTOEXEC.BAT files.

15.6c ⬚b⬚

The command will copy the system.dat and user.dat files from the Back
folder, replacing the versions in the windows\system folder.

15.6d ⬚c⬚

Windows driver files are special text files with a .inf file name extension.

Assignment 16 *Printers*

Task 1	The student uses the Interactive Media Instructor to explore the three main printing technologies.
Task 2	The student continues to use the Interactive Media Instructor to discover the features and characteristics of impact and inkjet printers.
Task 3	The student works with the Practice Computer System following the procedures in an Instruction Sheet to install and test an inkjet printer. The student recognizes the characteristics particular to Plug and Play USB devices.
Task 4	The student uses the Practice Computer System and follows an Instruction Sheet procedure to experiment with the printer controls and navigate through an on-line troubleshooting process.
Task 5	The student revisits the Interactive Media Instructor to examine the component parts of a typical laser printer.
Task 6	The student continues to use the Interactive Media Instructor to explore the steps in the laser printing process.
Task 7	The student works with the Practice Computer System following the procedures in an Instruction Sheet to remove the printer software installed earlier. **Note:** The student is instructed to re-package the printer, or store it in the condition in which it was found.
Task 8	The student returns to the Interactive Media Instructor to make a comparison between the three technologies. **Note:** There is a worksheet activity for this task, but no questions. **Note:** In tasks 3, 4 and 7, the student is asked to restart the Practice Computer System and to override the "auto-revert" software so that work already completed is preserved. If this is not done, the computer will restart in the "as shipped" configuration and some earlier work will have to be repeated.

16.1a ☐a☐

The three major technologies are impact, inkjet, and laser.

16.1b ☐d☐

The way that images are transferred on to paper.

16.1c c

The Inkjet technology produces print by spraying ink on to a page.

16.2a b

Electromagnets are used to fire the individual pins at the paper as required.

16.2b The options should be selected as follows:
- ☐ They do not require any consumables
- ☐ They produce high quality output
- ☑ They are simple and easy to maintain
- ☑ They can print multipage forms

Dot Matrix printers are simple and easy to maintain and they can print multipage forms.

16.2c b

The ink is heated, vaporizes, and expands out through the print head nozzles.

16.2d No

The cost of using inkjet technology printers can be considerably more than using other technology printers.

16.2e a

Printing photographic images requires heavy, high quality, and expensive paper.

16.3a d

The printer-end connection for parallel port operation is Centronics 36-pin.

16.3b a

The printer-end connection for USB port operation is a USB Type B.

16.3c a

Hi-Speed USB is another name for USB 2.0 and operates at 480 Mbps.

16.4a b

The Pause Printing control will cause all print jobs sent to the printer to be queued.

16.4b The options should be selected as follows:
☑   Installation problems with a local printer
☑   Printing is unusually slow
☑   Text near the edge of the page is missing
☑   Incorrect printer drivers

The Printer Troubleshooter wizard addresses a wide range of problems.

16.4c a

120MB of free hard disk space is, according to the Windows XP Help Troubleshooter, the requirement for printing.

16.5a c

The ink or toner is fused into the page.

16.5b d

A maintenance station is found on many inkjet printers, but not on lasers printers.

16.5c a

The registration rollers synchronize this movement.

16.5d a

Iron oxide particles.

16.5e No

The drum can only hold a charge when it is NOT exposed to light.

16.5f b

The static-charge eliminator strip does this job.

16.5g a

In the Fusing stage; the Teflon-coated roller is heated by the halogen lamp.

16.5h b

The circuit board is usually mounted in the base of the printer.

16.5i c

The transfer corona is a high-voltage device.

16.6a b

Raster image processing is followed by drum cleaning and charging.

16.6b a

EIDE controllers feature on PC motherboards, not in laser printers.

16.6c a

The rasterization step takes the formatted data and converts them to patterns of dots.

16.6d c

Drum cleaning scrapes toner from the drum and discharges the photosensitive drum.

16.6e b

A negative electrical charge.

16.6f d

Developing loads the drum with toner in the form of an image.

16.6g d

The fuser roller is heated by a halogen lamp.

16.7a c

Windows XP defines a logical printer in this way.

16.7b No

Other products from the same manufacturer, such as a digital camera or scanner, may also have files stored in this location.

Assignment 17 *Modems*

Task 1   The student uses the Interactive Media Instructor to discover the nature of
                              analog transmissions and their role in communications.

Task 2   The student moves to this textbook-based task to read about software drivers
                              and driver signing.

Task 3   The student works with the Practice Computer System and follows an
                              Instruction Sheet to install an internal (PCI) modem card.

Task 4   The student works with the Practice Computer System and follows an
                              Instruction Sheet to investigate the configuration options available for a
                              modem.

Task 5   The student is referred to the textbook to read about modem connections to
                              the Internet and the configuration choices available.

Task 6   The student works with the Practice Computer System and follows an
                              Instruction Sheet to remove the previously installed modem card and
                              software.

                              Note: In tasks 3, 4 and 6, the student is asked to restart the Practice
                              Computer System and to override the "auto-revert" software so that work
                              already completed is preserved. If this is not done, the computer will restart
                              in the "as shipped" configuration and some earlier work will have to be
                              repeated.

                              17.1a c

                              Dial-up and leased-dedicated services are offered.

                              17.1b a

                              The digital signal from the computer is converted to an analog signal for
                              the transmission over the telephone line.

                              17.1c The options should be selected as follows:
                              ☑   Slow
                              ☑   Unreliable
                              ☐   Error-free
                              ☑   Inexpensive

                              Modem transmissions are slow, unreliable, but seldom error-free.

17.1d The options should be selected as follows:
- ☐ Slower than analog dial-up
- ☑ Faster than analog dial-up
- ☑ More reliable than analog dial-up
- ☑ Relatively expensive

Leased-line connections are faster and more reliable than analog dial-up, and also more expensive.

17.2a b

One driver is normally sufficient; but two or more are sometimes required.

17.2b d

Driver signing was introduced with Windows 2000 to help reduce driver problems caused by poor programming.

17.2c No

Windows systems with driver signing protection do not block unsigned drivers completely, but they can be made to if required.

17.2d c

The default is Warn.

17.3a b

The AGP (Accelerated Graphics Port) is not suitable for a modem card.

17.3b d

Any free slot - it does not matter which. If however the card is removed, it is recommended that the same slot is used on re-installation.

17.3c c

The driver can be found on the manufacturer's CD.

17.4a d

The modem does not have a DMA (Direct Memory Address) resource setting.

17.4b a

The Advanced tab, Change Default Preferences.

17.4c c

Disabling error correction may allow a connection to continue for a longer period.

17.4d ⬚Yes⬚

The setting RTS/CTS refers to hardware flow control; XON/XOFF refers to software flow control.

17.4e ⬚b⬚

Hayes modems were by far the most popular modems used in the early days of networked communications.

17.5a ⬚c⬚

Satellite communications can use either a modem or NIC (Network Interface Card) connection.

17.5b ⬚b⬚

Modems transmit data as a series of individual 1s and 0s.

17.5c ⬚d⬚

The 16550A has just such attributes.

17.5d ⬚b⬚

33 Kbps is theoretically achievable.

17.5e ⬚b⬚

Hardware handshaking is faster and more dependable than software handshaking.

17.5f ⬚c⬚

USB ports, with plug and play, easy portability, and requiring no external power source, offer best solution.

17.6a ⬚b⬚

Disabling frees the resources allocated. If the problem persists, the device can be quickly re-enabled and a resolution sought elsewhere.

17.6b ⬚d⬚

Using the manufacturer-supplied uninstall program is the best choice.

Assignment 18 *Optical Storage Devices and Backup*

Task 1

The student works with the Practice Computer System and follows the procedures in an Instruction Sheet to install a compact disk drive.

Task 2

The student works with the Practice Computer System following the procedures in an Instruction Sheet to create a backup of selected files and folders.

Task 3

The student works with the Practice Computer System following the procedures in an Instruction Sheet to explore different types of backup policy.

Task 4

The student works with the Practice Computer System and follows the procedures in an Instruction Sheet to test the compact disk drive, using the Windows XP operating system software to write files to it.

Task 5

The student works with the Practice Computer System following the procedures in an Instruction Sheet to restore information from a backup file.

Task 6

The student works with the Practice Computer System following the procedures in an Instruction Sheet to uninstall the previously fitted compact disk drive.
Note: The student is asked to ensure that the correct drive is removed, (the Practice Computer System is shipped with a DVD already installed which should not be removed).

Note: In tasks 2, 3 and 5, the student is asked to restart the Practice Computer System and to override the "auto-revert" software so that work already completed is preserved. If this is not done, the computer will restart in the "as shipped" configuration and some earlier work will have to be repeated.

18.1a $\boxed{\text{d}}$

Modern PCs would normally be configured so that an additional optical drive can be added as the slave on the secondary controller.

18.1b $\boxed{\text{b}}$

ML is not one of the three recognized abbreviations - they are SL (slave), MA (master) and CS (cable select).

18.1c ⬚d

A straightened paperclip can be introduced into the small hole in the front panel to trip the mechanical release of the CD tray.

18.2a ⬚b

The default file name is backup.bkf.

18.2b The options should be selected as follows:
- ☑ Date of backup
- ☐ Folder names and file names backed up
- ☑ Number of folders and files backed up
- ☑ Time of backup

The standard report does not list folder names or file names.

18.2c ⬚No

Backup and restore operations can be conducted securely by users with special rights.

18.2d ⬚d

Saving backups to tape drives can use a type of tape system called QIC (Quarter-Inch Cartridge).

18.3a ⬚a

A differential backup saves all files that have changed since the last normal backup, regardless of any intermediate incremental or copy backup.

18.3b ⬚b

The four files needed are the original normal backup file, and the files from Tuesday, Wednesday, and Thursday.

18.3c ⬚c

The two files needed are the original normal backup file and the differential file from Wednesday.

18.3d ⬚b

A differential backup will leave a set archive bit ON so that the next differential backup saves the file again.

18.4a ⬚No

Modern operating systems, such as Windows XP, incorporate generic software to manage many types of CD drives.

18.4b $\boxed{a}$

The standard floppy drive format holds up to 1.44 MB; a compact disk typically holds between 450 and 500 times more (650 MB or 700 MB).

18.5a $\boxed{Yes}$

18.6a $\boxed{Yes}$

18.6b $\boxed{Yes}$

Assignment 19 *Managing Disks*

Task 1   The student works with the Practice Computer System following the procedures in an Instruction Sheet to examine and record the disk configuration reported by the Windows XP Storage Disk Management utility.

Task 2   The student works with the Practice Computer System following the procedures in an Instruction Sheet to set a disk quota to manage disk space usage.

Task 3   The student returns to the textbook to read about Formatting and File Systems.

Task 4   The student works with the Practice Computer System following the procedures in an Instruction Sheet to maintain a disk with the Windows XP defrag tool.

Task 5   The student returns to the textbook to read about maintaining and troubleshooting disks.

Task 6   The student works with the Practice Computer System following the procedures in an Instruction Sheet to maintain a disk with the Windows XP Error-checking (ScanDisk) tool.

19.1a b

Disk space that has not been identified with a partition is termed unallocated.

19.2a The options should be selected as follows:
- ☑   900 MB
- ☑   At 0.9 GB
- ☐   At 0.5 GB
- ☑   At 0.00085 TB

The limit stated equates to approximately 1 GB. Options A, B, & D are all about 90% of this, which is a sensible and practical warning point. (TB is shorthand for Terabyte.)

19.2b d

Disk Clean up examines the disk and suggests where space-saving changes may be made.

19.3a The options should be selected as follows:
- ☐   16-bit FAT can support up to 4 GB partitions
- ☐   A 40 GB FAT 32 partition has a 16 KB cluster size
- ☑   NTFS4 has two MFT file allocation tables
- ☑   NTFS5 features file encryption, hard drive space limit, and volume mounting

The two statements about NTFS 4 and 5 are true.

19.3b ⊟b⊟

2 terabytes - or 100,000 trees made into paper and printed.

19.3c ⊟a⊟

Disks are only available when the second stage of preparation - formatting - has been completed.

19.4a ⊟d⊟

The Defragmenter program moves data to produce a neat contiguous Chunk, which occupies the minimum amount of space on the drive.

19.5a ⊟d⊟

ScanDisk - renamed error-checking in later versions of Windows such as XP.

19.5b ⊟b⊟

Directory information is placed at the beginning of the drive.

19.5c ⊟c⊟

An Invalid drive specification error points to a partitioning problem.

19.5d ⊟d⊟

The EXPAND command is the Windows 2000 version.

19.5e ⊟a⊟

A slight hum and occasional slight scratching noise is normal as the disk rotates and the heads move over the surface of the disk.

19.6a ⊟No⊟

Disk Check does not allow use of the disk when it is being scanned.

Assignment 20 *Adding Peripherals*

Task 1   The student works with the Practice Computer System following the
                               procedures in an Instruction Sheet to add a wireless, optical mouse
                               The student examines the procedures for maintaining mice, and explores the
                               features and characteristics of wireless operations.

Task 2   The student moves to this textbook-based task to read about the
                               specifications laid down by common wireless standards.

Task 3   The student works with the Practice Computer System following the
                               procedures in an Instruction Sheet to add and test stereo speakers.

Task 4   The student is directed to the textbook to read about the options available
                               and factors to be considered when choosing sound cards and speakers.

Task 5   The student uses the Interactive Media Instructor to examine how the
                               Windows Device Manager can assist with the installation of older, non-plug
                               and play devices.

Task 6   The student works with the Practice Computer System following the
                               procedures in an Instruction Sheet to remove and re-package the mouse and
                               speakers added earlier in the Assignment.

                               Note: In task 1, the student is asked to restart the Practice Computer System
                               and to override the "auto-revert" software so that work already completed is
                               preserved. If this is not done, the computer will restart in the "as shipped"
                               configuration and some earlier work will have to be repeated.

                               20.1a The options should be selected as follows:
                               ☑   Incorrect positioning of the receiver station
                               ☑   Fluorescent lights
                               ☑   Small electric motors
                               ☑   Computer system base units

                               Wireless operation can be affected by all of these factors.

                               20.1b d

                               Optical pointing devices use digital technology - they are not necessarily
                               wire-less, nor do they by definition have additional features.

                               20.1c a
                               A USB hub does just that.

20.1d b

A lint-free cloth dampened with rubbing alcohol.

20.1e d

A lint-free cloth dampened with mild soap and water.

20.2a c

Maximum throughput is usually achieved at about 25 feet or less.

20.2b c

Standard 802.11a is the least prone to interference.

20.2c d

The IrDA standard has no security.

20.2d a

IEEE 802.15 is based upon Bluetooth.

20.3a b

Subwoofer. Woofers and tweeters are speaker types found in HiFi applications, and an equalizer is a component of a HiFi system.

20.3b b

The graphic shows the line out connector, used for external speakers.

20.4a a

A sound card processor accelerates.

20.4b b

Signal-to-noise ratios are expressed in decibels.

20.4c c

The joystick connector is also used for MIDI devices.

20.4d d

A universal audio cable has a set of connectors to enable connection to almost any sort of sound card. MPC2 cables are a modern standard suitable only for today's cards and drives.

20.4e ☐d☐

DirectX is the required standard for the 5.1 sound system stated..

20.5a The options should be selected as follows:
- ☐   When you add a Plug and Play Device
- ☐   When you add a USB device
- ☑   When you are having problems with a device
- ☑   When you add a non-Plug and Play device

Installing non-Plug and Play devices and fixing devices with problems will need to make use of this Wizard.

20.5b The options should be selected as follows:

☑	Disable, enable, and uninstall devices	☑	Identify and update device drivers
☑	Adjust device settings and properties	☑	Print a summary of devices installed on the computer
☑	Identify device conflicts	☑	Determine whether the hardware on your computer is working properly

All of items are managed by the Device Manager.

20.6a ☐Yes☐

Post-test Quiz

The post-test quiz is graded, unlike the pre-test quiz. The post-test quiz contains questions that have previously been asked both in the pre-test quiz and within the assignments, as well as some new questions.

The following table shows the post-test question/assignment relationship.

Question	Assignment		Question	Assignment
Part 1			**Part 2**	
1	3		1	11
2	5		2	14
3	2		3	12
4	1		4	16
5	1		5	20
6	8		6	19
7	4		7	19
8	10		8	15
9	9		9	13
10	9		10	16
11	7		11	18
12	5		12	14
13	6		13	17
14	8		14	16
15	9		15	20

Post-test Quiz: Part 1

1   a

The measure of resistance is Ohms.

2   b

IRQs are used by devices to request attention.

3   c

The HDD is not mounted on the motherboard.

4   a

The Power Supply Unit (PSU).

5   d

The volume of flowing of water is similar to the volume of flowing of electricity, measured in Amperes.

6   c

This is the name of the swap file used by Windows Me (and Windows 9x). The other operating systems call this a page file (PAGEFILE.SYS).

7   d

Assures that the driver has been tested to Microsoft standards.

8   b

The Views icon.

9   a

The vacuum tube.

10   a

800 x 600 is a natural resolution for this size display.

11   b

Heat sink compound is used between the CPU and its cooling fan.

12   No

No damage results.

13   d

NTDETECT.COM is not a MS-DOS program written when a start-up disk is created.

14   a

The phenomenon is caused by programs being constantly moved between RAM and a swap file, and is also known as disk thrashing.

15   No

LCD monitors are fundamentally sharper and more precise because they do not have phosphors that glow and fade.

Post-test Quiz: Part 2

1   [a]

The System Restore tool.

2   [c]

The terms used are master and slave.

3   [c]

The Add / Remove Programs applet.

4   [b]

Impact printer.

5   [d]

This standard operates at up to 11 Mbps.

6   [a]

None, extended partitions are not bootable.

7   [c]

Windows NT4 features the Disk Administrator tool.

8   [d]

HKEY_CLASSES_ROOT

9   [d]

Universal Naming Convention.

10   [a]

Impact printer pins are fired electromagnetically.

11   [b]

CD-RW devices heat an amorphous non-crystalline substance, thus recording data.

12   [d]

NTFS.

13   b

V92 offers this.

14   b

Rasterization.

15   a

DirectX.

Enrichment Activities

For students who are to be tested on writing or presentation skills, the following enrichment activities are suggested. These can be assessed on the Management System using the instructor marked work facility (refer to the Laboratory Management Instructor's Guide for full details).

Module number = 73.66
Instructor marked assignment number = 70

The assignment in the Management System contains a suggested scoring procedure. Answering the questions in the Management System for a student will form part of their assessed work.

1   Write a report in no more than 500 words, on one of the following topics:

A   The technologies used by modern monitors, and how problems with them can be resolved

B   Memory installation and removal

C   The technologies used by modern printers, and their relative advantages and disadvantages

The student should use diagrams and references to support information they have presented in the report.

Suggested scoring procedure for reports:
Organizes the information in a logical way.   ____ (20)
Introduces the report in an appropriate way.   ____ (20)
Achieves coherence in the presentation as a whole.   ____ (20)
Summarizes the content of the report.   ____ (20)
Uses a range of diagrams and references effectively.   ____ (10)
Produces a report of appropriate length.   ____ (10)
Total   ____

2   Prepare a 10-minute presentation, to be given to the class, on one of the following topics:

⬜ A   The Windows Registry

⬜ B   The disassembly and assembly of a PC

The student should use diagrams and references to support information they have presented.

Suggested scoring procedure for presentations:

Organizes the presentation in a logical way.	____	(20)
Introduces the material in an appropriate style.	____	(20)
Speaks clearly and confidently.	____	(20)
Responds appropriately to questions from the audience.	____	(20)
Uses selected media skillfully.	____	(10)
Uses the time available for the presentation effectively.	____	(10)
Total	____	

Student Worksheet Assessment

Student Worksheets can be assessed on the Management System using the instructor marked work facility (refer to the Laboratory Management Instructor's Guide for full details).

Module number = 73.66
Instructor marked assignment number (part 1) = 71
Instructor marked assignment number (complete) = 72

The assignments in the Management System contain a suggested scoring procedure. Answering the questions in the Management System for a student will form part of their assessed work.

Suggested scoring procedure for presentation:
Uses legible handwriting.	____	(20)
Uses correct spelling.	____	(10)
Uses correct capitalization.	____	(10)
Uses correct punctuation.	____	(20)
Uses grammar correctly.	____	(40)
Total	____	

Suggested scoring procedure for content:
Responds correctly to the prompt.	____	(10)
Includes supporting ideas or examples.	____	(10)
Completes the workbook.	____	(40)
Uses an appropriate vocabulary.	____	(20)
Uses clear language.	____	(20)
Total	____	

Computer Maintenance & Upgrading (30 hour)

Typical Completed Student Workbook

Use this as a guide to mark the Student Workbook.

Assignment 1 – Getting Started

📝 Peripheral Connectors

The table provides space to record the type and usage of peripheral connectors found on the practice computer.
Row 1 has been completed as an example of how the information should be presented.

Complete the other entries now by writing information about your practice computer:

	Item:	Identified by:
1	Keyboard Connector	PS/2 mini-DIN, color-coded purple
2	Mouse Connector	*PS/2 mini-DIN, color-coded green*
3	Display monitor connector	*DB style, 15 pin.*

The thumbnails below illustrate various parts of a computer system. Place a tick in the box to the right of each item if it contains components that should be treated with caution because a high-voltage electrical charge can be retained, even when disconnected from the power supply:
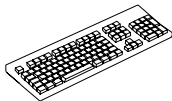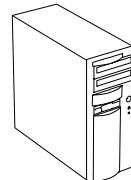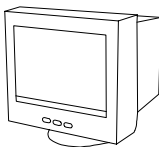
📝 Hazards

An important part of preparing for a task is to identify any potential for accidents. Write below three potential hazards that were identified in your practical work:

1................... *Exposed AC power sources*...

2................... *Sharp cutting tools*..

3................... *Trailing wires and cables*..

Assignment 1 – Getting Started

📝 **ESD Failures**

Electrostatic discharge into a PC component can cause damage. Three types of problems caused are shown here:

Upset failure   **Degradation failure**   **Catastrophic failure**

Write the type of failure next to the appropriate description in the table below:

Description of failure	Type of failure
These failures result in the component being physically destroyed.	*Catastrophic failure*
These failures manifest themselves as one-time errors.	*Upset failure*
These failures are the most common cause of the intermittent failure syndrome.	*Degradation failure*

Assignment 1 – Getting Started
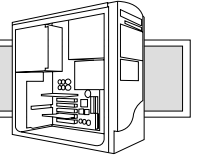
📝 Location of Various Connectors

The information below will be a record that you may need later in this module. It may also be useful as a reference in future work.

Create a freehand sketch of your practice computer rear panel in the space below.
Label the sockets from which you unplugged the keyboard, mouse, and display monitor:

Draw your sketch below:
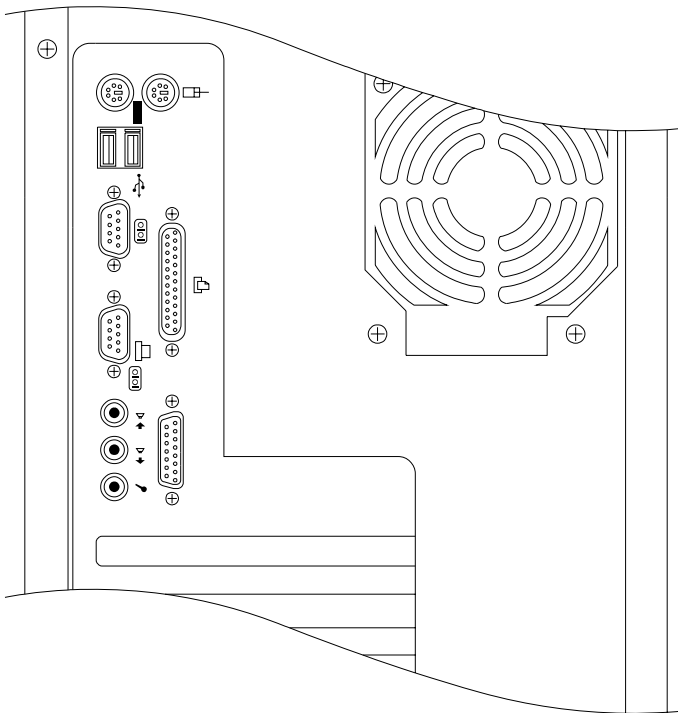
Assignment 1 – Getting Started
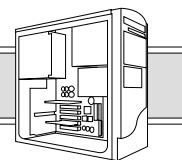
📝 **Acronyms, definitions, and abbreviations:**

Write the full name of each of the following as they are used in an electrical context:

PSU: .... *Power Supply Unit* ....

ESD: .... *Electrostatic Discharge* ....

CRT: .... *Cathode Ray Tube* ....

AC: .... *Alternating Current* ....

DC: .... *Direct Current* ....

Assignment 2 – Working with the Computer
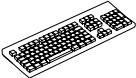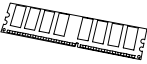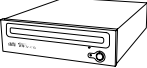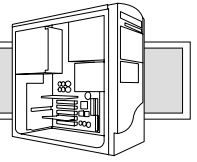
📝 **Table of Components**

Examine the graphics in the left-most column and write the name of each component in the column headed Name.
For example, if you think the first item is a keyboard, write in Keyboard.

The four right-most columns are headed with specific functions. For each item select one that best describes the item's main function and tick the corresponding box:
For example, if you think the main function of a keyboard is Input, place a tick in the Input column.

Item	Name	Input	Storage	Processing	Output
	Keyboard	✓			
	Printer				✓
	Floppy Disk		✓		
	Video Card				✓
	Mouse	✓			
	RAM / Main Memory		✓		
	Processor or CPU			✓	
	CD / DVD Player / Writer		✓		

Assignment 2 – Working with the Computer

Startup Modes

Windows Operating Systems provide various Startup modes, some of which are listed below, to help troubleshoot problems.

Safe Mode   **Safe mode with command prompt**   **Enable boot logging**

Complete the sentences below by using a startup mode taken from the list above:

Enable boot logging...................................... *starts normally and creates a file called Ntbtlog.*

Safe mode...*starts with only very basic drivers for mouse, VGA monitor, keyboard, mass storage, and system devices.*

Safe mode with command prompt..........*loads the cmd.exe shell to the operating system.*

Acronyms, definitions, and abbreviations:

The CPU is at the heart of a computer system. Write its full name below:

Central Processing Unit...

ACPI is used when discussing Power Options. Write the full name of the abbreviation below:

Advanced Configuration and Power Interface ....

An ERD may be used to boot the system. What is its full name?

Emergency Recovery Disk..

ICs are also known as .... *Integrated Circuits*..

Assignment 3 – Internal Components

Instructors Note:
The task that the student has been given is to identify and record connections. Where no typical answers are given, it is because there are many possibilities dependent upon the model of computer being used and the way the hardware is installed.
You should base your assessment of student work on the PC configuration you are using, and on the neatness and completeness of the record.

Configuration of the Computer

The form below has been prepared for you to record information about the practice computer.

Complete the information as you progress through the practical activities:

Components: It is important to be able to identify major system components.

Motherboard	Product identifier:	Power Connector types:
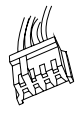
Battery	Manufacturer:	Product identifier:
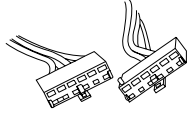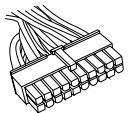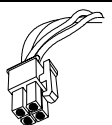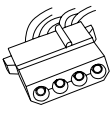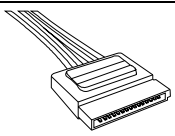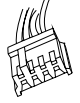
| Drive	Bay size: *3½-inch*	Drive bay position:
Drive	Bay size: *5¼-inch*	Drive bay position:
Drive	Bay size: *5¼-inch*	Drive bay position:
Drive	Bay size:	Drive bay position:

Assignment 3 – Internal Components

Power connections: It is important to be able to recognize if all of the components are correctly connected to a power source. Equally important is to know what spare power connectors are available for an upgrade.

Unused power connectors		Number:
Unused power connectors		Number:
Unused power connectors	Other connectors:	Number:

Used power connectors		Used to supply power to:
Used power connectors		Used to supply power to:
Used power connectors		Used to supply power to:
Used power connectors		Used to supply power to:
Used power connectors		Used to supply power to:
Used power connectors		Used to supply power to:
Other used power connectors		Used to supply power to:
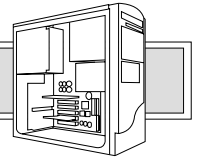
Assignment 3 – Internal Components

IDE Connections: It is important to be able to identify each IDE controller and see where it is used.

IDE 1 Controller	Connected to:
IDE 2 Controller	Connected to:

IDE data cables: It is important to be able to identify what ribbon cables are used, and where and how they are connected.

The practice computer system may have up to three ribbon cables. Identify each by writing the name of the unit it is connected to. Record the position of pin 1 on the cable relative to the power connector and the number of unused connectors on the ribbon cable by marking the appropriate entries in the table:

Ribbon cable connected to:	Pin 1 position relative to unit's main power connector:	Unused connectors:
	Nearest to / Furthest from	All / Center / End / None
	Nearest to / Furthest from	All / Center / End / None

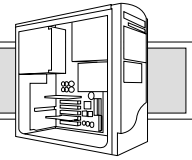**Serial ATA Connections:** It is important to be able to identify these.

Connector 1	Connected to:
Connector 2	Connected to:

Serial ATA data cables: It is important to be able to identify what data cables are used, and where and how they are connected.

The practice computer system may not have any of these, but if it has, identify each by writing the name of the unit it is connected to:

| Serial ATA data cable connected to: |
|---|
| |
| |

Assignment 3 – Internal Components

Expansion slots: It is important to be able to identify each expansion slot.

The practice computer system has a number of expansion slots. Identify each one and the number of slots used and available:

PCI- Express	Total number of slots:	Cards mounted: 1 2 3
PCI	Total number of slots:	Cards mounted: 1 2 3
AGP	Total number of slots:	Cards mounted: 1 2
CNR	Total number of slots:	Cards mounted: 1 2

Main memory: It is important to be able to identify the memory slots and how many are free.

Number of slots used	Number of slots free

Assignment 3 – Internal Components
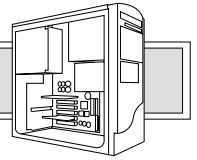
Acronyms, definitions, and abbreviations:

Expansion cards are usually named from the standard to which they conform. Write in the full names of the expansion card types:

PCI stands for .... Peripheral Component Interconnect ....

AGP stands for .... Accelerated Graphics Port ....

There are further abbreviations related to data cables and memory. Write in the full names:

IDE stands for .... Integrated Drive Electronics ....

CMOS stands for .... Complementary Metal Oxide Semiconductor ....

SIMM stands for .... Single Inline Memory Module ....

DIMM stands for .... Dual Inline Memory Module ....

SDRAM stands for .... Synchronous Dynamic Random Access Memory ......

DDR stands for .... Double Data Rate ....

Assignment 3 – Internal Components

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Assignment 4 – Windows XP

📝 Desktop Graphic

On the graphic of the desktop below, label and indicate the default location of the five major elements listed.
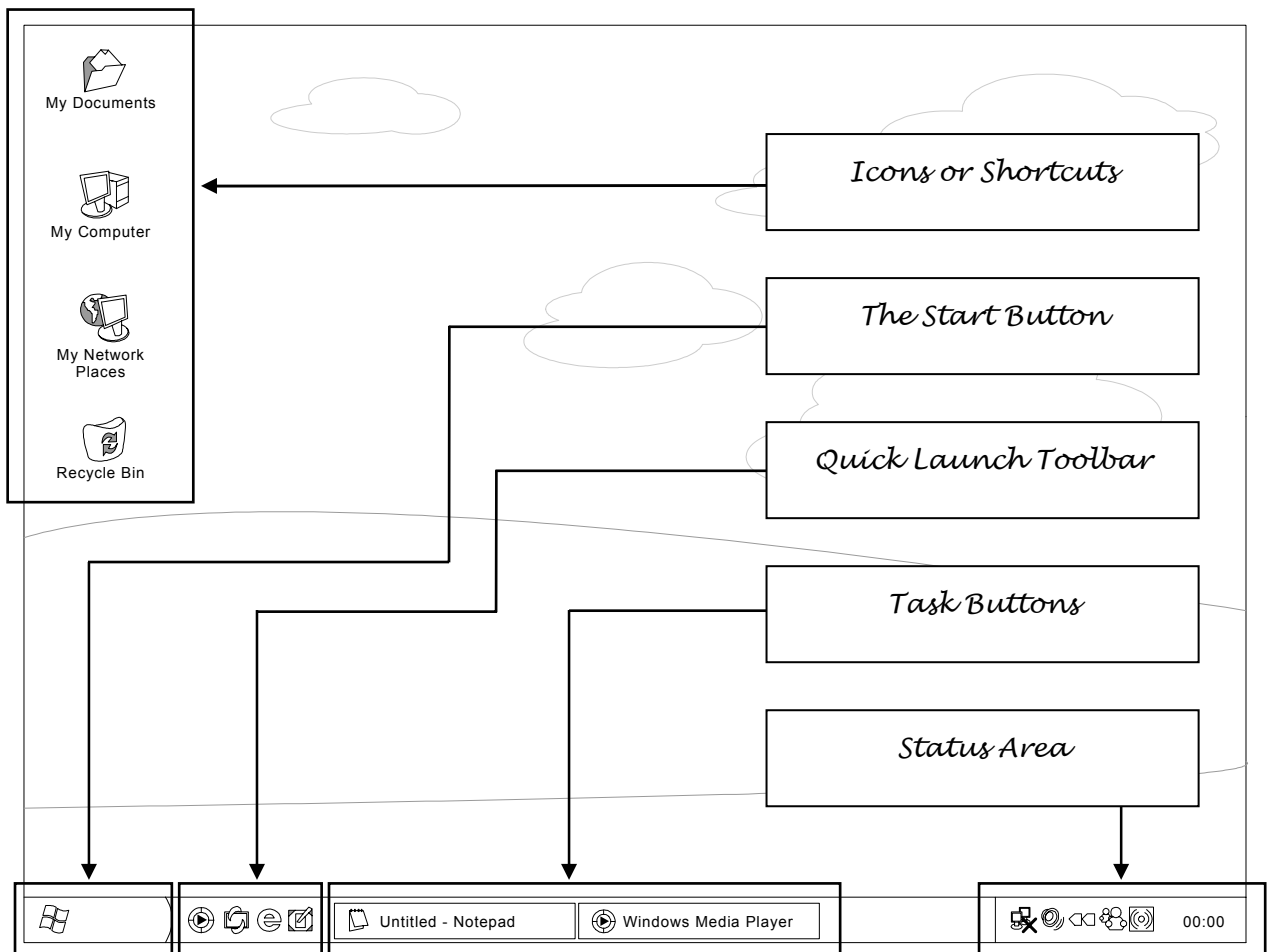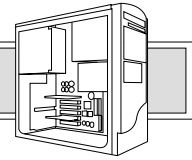*The elements are:*

Quick Launch Toolbar
Icons or Shortcuts
Task Buttons
*Status Area*
The Start Button

Assignment 4 – Windows XP

You should keep certain points in mind when arranging a desktop. Complete the sentences below:

1   *Shortcuts for frequently used programs should be placed* ....*in the (Quick Launch) task bar*...

2   *Putting* .... *a large number of*............. *icons on the desktop makes finding icons* ... .*more difficult*................

3   *Put less frequently used programs in the* .... *Start Menu*............. *and arrange them in a way that makes them* .... *easy to find*.......................
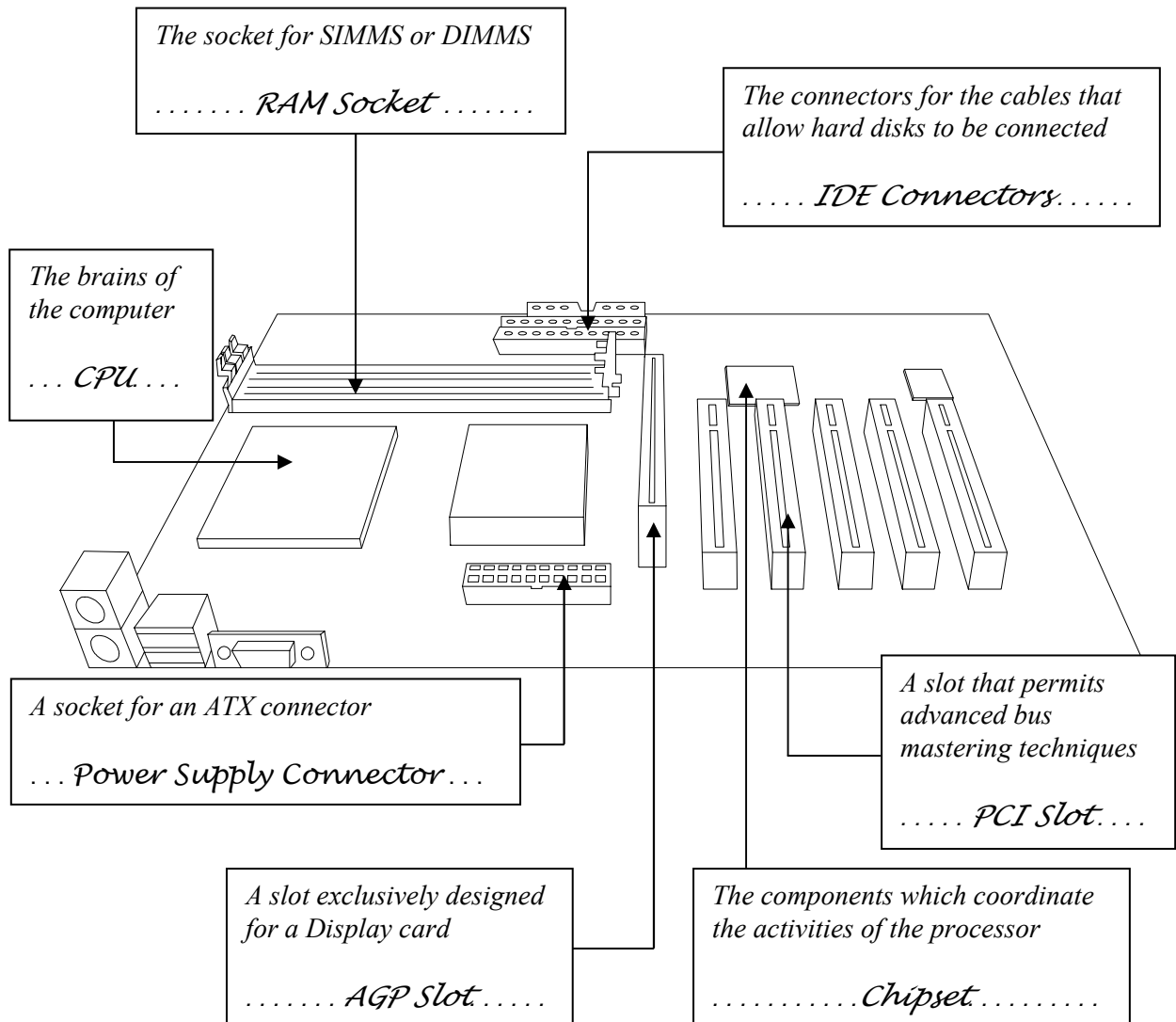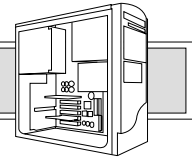
Assignment 5 – The Motherboard and CMOS
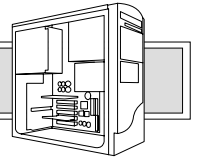
📝 **Components on a Typical Motherboard**

The following descriptions apply to various components that can be found on a typical motherboard.

Label each component on the motherboard with its normal name:

The socket for SIMMS or DIMMS

. . . . *RAM Socket* . . . .

The connectors for the cables that allow hard disks to be connected

. . . . . *IDE Connectors* . . . . . .

The brains of the computer

. . . *CPU* . . . .

A socket for an ATX connector

. . . *Power Supply Connector* . . .

A slot that permits advanced bus mastering techniques

. . . . . . *PCI Slot* . . . .

A slot exclusively designed for a Display card

. . . . *AGP Slot* . . . . .

The components which coordinate the activities of the processor

. . . . *Chipset* . . . .

Assignment 5 – The Motherboard and CMOS

📝 Bus Types

Complete the table below by writing in the name of the bus types that match the descriptions given:

For example, If you think that the first entry refers to a PCI card, then write PCI under Bus Type.

| Description	Bus Type
Used for external peripherals such as a mouse, keyboard, scanner, digital camera or joystick. 480MB/sec	*USB*
Optimized single slot for the display adapter. Up to 2.1GB/sec	*AGP*
16 bit 10MHz 20MB/sec	*MCA*
16 bit 8MHz 5MB/Sec	*ISA*
32 bit 8MHz 33MB/sec	*EISA*
32 bit 66MHz 132 MB/sec	*PCI*

📝 CMOS Settings

Record the settings from the CMOS Setup Utility program here:
Instructor's Note:
The values here will depend upon the model of computer being used and the local environment. You should base your assessment of student work on the PC configuration you are using, and on the neatness and completeness of the record. The values shown below are typical for the Practice Computer System as shipped.

Setting:	Value:
Total Memory	*245760 k*
IDE Primary Master Capacity	*40022 MB*
Current CPU Temperature	*30 °C*
CPU Core Voltage	*1.4 V*

Setting:	Value:
+ 3.3 V	*3.23 V*
+ 5 V	*5.05 V*
+ 12 V	*11.96 V*
- 12 V	*-11.45 V*
- 5 V	*-4.80 V*
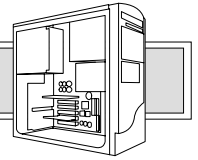
Assignment 6 – Starting Windows

Windows NT family

The Windows NT family of operating systems makes a clear distinction between the files that start the PC and the actual operating system files. Write the names of the files that start the PC here:

1................. *NTLDR* ....

2................. *BOOT.INI*...

3................. *NTDETECT.COM* ....

4................. *NTBOOTDD.SYS*...

The Command Line

The command line interpreter is used mainly for troubleshooting. The commands however, can be used in batch files to automate many tasks.
Write the syntax below for the XCOPY command that would update files in the \Reports directory with the files in the \Salesdata directory. Add the switch and parameter that would limit the copy to only those files that have changed since December 29, 2003:

....*xcopy \salesdata \reports /d:12-29-2003*.......................................

The CHKDSK command

*The command line interpreter **chkdsk** is a troubleshooting command. File verification takes place in 3 stages – write below, in the correct order, what chkdsk verifies:*

1................. *FIles*...

2................. *Indexes*..

3................. *Security Descriptors*...
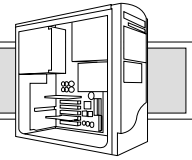
Acronyms, definitions, and abbreviations:

When Windows NT / 2000 / XP starts, the NTLDR program is started by the MBR.
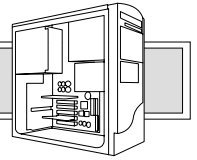*What does MBR stand for?*

...........................*Master Boot Record*...

Assignment 6 – Starting Windows

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Assignment 7 – Motherboard Components

📝 Practice Computer Information

The form below has been prepared for you to record information about the practice computer system. Complete the information as you progress through the practical activities:
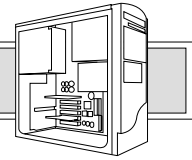
Instructors Note:
The information here to identify and record information about the practice computer is dependent upon the model of computer being used and the way the hardware is installed.
You should base your assessment of student work on the PC configuration you are using, and on the neatness and completeness of the record.

|		
Processor	Manufacturer: Type:	Speed: GHz
RAM	Amount:	
Communications Port 1	I/O Range:	IRQ:
Printer Port	I/O Range:	
Primary IDE Channel	I/O Range:	IRQ:
Secondary IDE Channel	I/O Range:	IRQ:

Assignment 7 – Motherboard Components

📝 Upgrade

The following table shows various types of components in the left and right columns
The middle column can contain either the word To, or the word From.

Write the word To, or From in the space provided so that, provided the other components were
compatible, a sensible and practical upgrade would result:

For example, if you think that it is sensible and practical to upgrade from an ATX motherboard and
case to an AT motherboard and case, write the word "From" in the center column

Type of component	Upgrade To / From	Type of component
AT motherboard and case	*To*	ATX motherboard and case
PCI sound card	*From*	Built-in sound card
DDR SDRAM	*From*	SDRAM
ABIT NV7-133R motherboard	*To*	Gigabyte GA-7VAXP motherboard

Assignment 8 – Memory
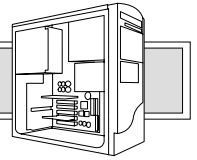
Measuring Performance

Instructor's Note:
The information recorded is dependent upon the PC configuration being used for the Practice Computer System.
*The entries below are for you to record **before upgrade** and **after upgrade** measures of the practice computer system performance:*

| *Before installation of the new memory:*	*After installation of the new memory:*
Record the memory size from WINMSD below	*Record the memory size from WINMSD below*
....	....
Record the Task Manager values noted below	*Record the Task Manager values noted below*
....	....
Record the PF Usage below	*Record the PF Usage below*
....	....
Record the Maximum CPU usage observed below	*Record the Maximum CPU usage observed below*
....	....
Record the Commit Charge – Peak below	*Record the Commit Charge – Peak below*
....	....

Assignment 8 – Memory

📝 **Motherboard**

*The graphic below shows part of a motherboard. Use arrows to identify the following components:*

| Open locking tab |
| Memory module |
| Memory module slots |
| Closed locking tab |
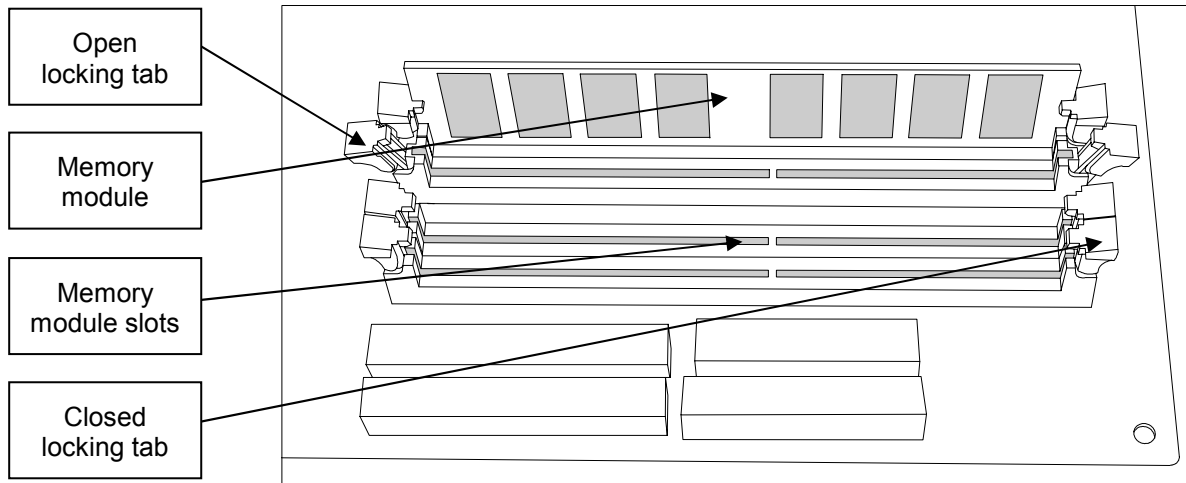
Assignment 9 – Monitors
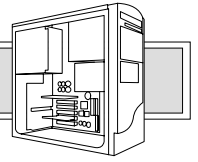
📝 **Monitor Construction**

On the outline of a monitor below use labels and arrows to identify:

The vacuum tube

The electron guns

The light-sensitive coating lit by the electron beam
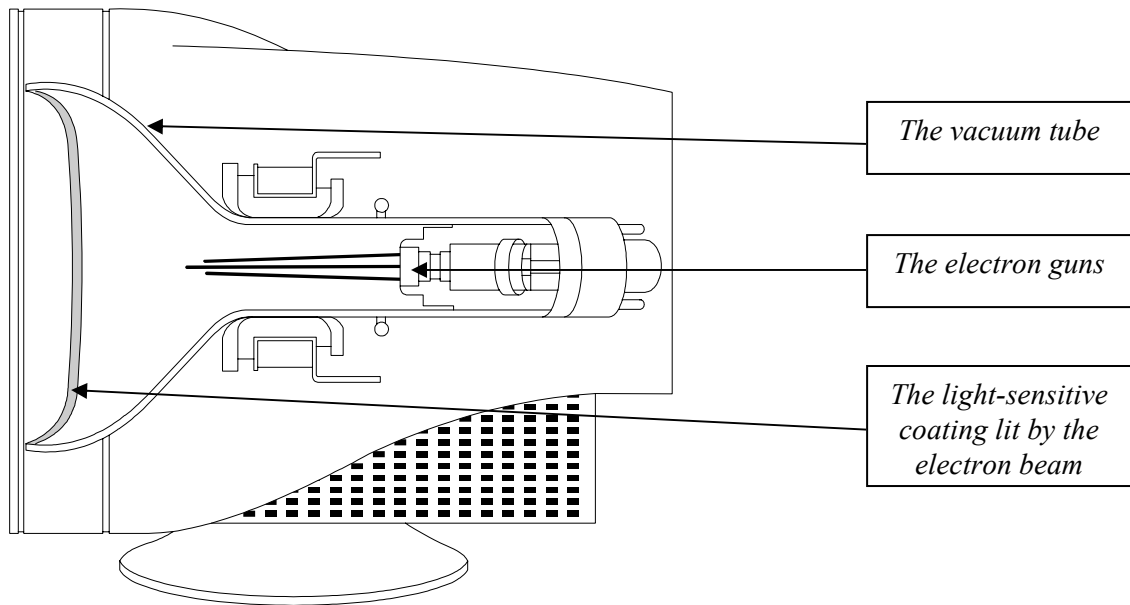
📝 **Monitor Settings**

The table below is for use during this assignment to record monitor settings. Enter data as you proceed through the practical activities:
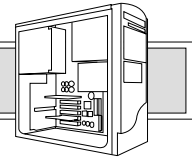
Instructors Note:
The values here will depend upon the model of computer and monitor being used.
You should base your assessment of student work on the PC configuration you are using, and on the neatness and completeness of the record.

Setting	Value
Screen resolution	*800 x 600 pixels*
Color quality	*Highest (32 bit)*
DPI setting	*Normal size (96 DPI)*
Font size	*Normal*
Monitor type	*Default monitor*
Screen refresh rate	*Use hardware default setting*

Assignment 9 – Monitors

📝 LCD and CRT Monitor Comparison

*Write below some of the points where **CRT** monitors **have an advantage** over **LCD** monitors:*

1.............*CRT Monitors are able to display at different resolutions*................................

2.............*CRT Monitors can display a wide range of very light or very dark colors*..

3.............*CRT Monitors react quickly to scene changes, reducing blur and retaining detail*...

4.............*CRT Monitors retain screen brightness and color when viewed from the side*.......

5.............*CRT Monitors are less expensive than their LCD equivalents*...........................

📝 Acronyms, definitions, and abbreviations:

Fill in the blank entries below:

CRT stands for....................................*Cathode Ray Tube*...

LCD stands for ....*Liquid Crystal Display* ....

Pixels is a contraction of the term.......*Picture Elements*..

VESA stands for....................................*Video Electronics Standard Association*.....................

Assignment 10 – Managing Folders, Files, and Software

📝 **Software Installation Record**

The template below is typical of one which might be used as a record of application software installation. Complete the record as you proceed through the practical activity:

Instructors Note:
The information here is dependent upon the software version and the student's installation experience.
You should base your assessment of work on the software you are using, and on the neatness and completeness of the record.

Software Title:	Version:	License Key:
Adobe Acrobat	*5.00*	Not Required

Installation Date:	Changes to Default Installation:
1ˢᵗ January 2005	*None*

Installed by:	Problems Encountered:
Student	*None*

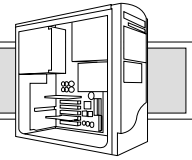| Installed to: (name of computer) |
|---|
| *Practice Computer* |

📝 **Levels of Access**

Match each of the terms - Privileges, Rights, Permissions - with one of the descriptions given below:

.... *Rights* .... *are the authorities to carry out a task such as a backup*

.... *Permissions* .... *are the rules that govern who can access an object, and in what manner*

.... *Privileges* .... *are assigned as part of the security settings of a computer*

Assignment 10 – Managing Folders, Files, and Software

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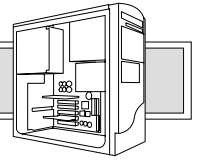
Assignment 11 – Protecting the System

📝 System Restore Settings

The table below has been provided for you to record the drives being monitored by System Restore and the disk space allocated to each.
Complete the table as you carry out your practical work:

Instructor's Note:
The values here will depend upon the model of computer being used and the local environment. You should base your assessment of student work on the PC configuration you are using, and on the neatness and completeness of the record.

Drive:	Status:	Disk space to use:	% of total available:
C	Monitoring	744 MB	12%
F	Monitoring	400 MB	13%
E	Monitoring	400 MB	12%

📝 Software Installation Log

The template below is typical of one which may be used as a record of application software installation. Complete the record as you proceed through the practical activity:

Instructors Note:
The information here is dependent upon the software versionand the student's installation. You should base your assessment of work on the software you are using, and on the neatness and completeness of the record.

Software Title:	Version:	License Key:
Norton Antivirus	5.00	

Installation Date:	Changes to Default Installation:
1ˢᵗ January 2004	None

Installed by:	Problems Encountered:
Student 2	None

Installed to: (name of computer)
Practice Computer
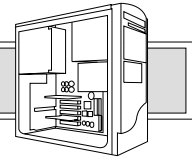
Assignment 11 – Protecting the System

📝 Virus types

Boot Sector, Executable, Macro, Trojan, and Worm are five types of virus. Complete the sentences about the viruses by writing in the most appropriate virus name:

1 ...... *Executable* .... *viruses reside in executable files.*

2 *A....* *Worm* .... *virus replicates itself by making copies of itself on other systems on a network.*

3 *A....* *Macro* .... *virus will auto-start when a particular application is run.*

4 *Using the FDISK / MBR command is a popular method of removing* ..... *Boot Sector* .... *viruses.*

5 ...... *Trojans* .... *are programs that do something other than what the person who runs the program believes they will do.*

📝 Preparing for Problems

In order to be best prepared for problems with different operating systems you should have various tools in place.

The names of five popular tools are:
System Restore   Backup and Restore Wizard   Automated System Recovery
Emergency Repair Disk   Recovery Console

The four operating systems are:
Windows NT 4.0   Windows 2000 Professional   Windows XP Home
Windows XP Professional

Complete the five sentences on the next page by writing in the missing name of the tool or operating system as appropriate:

Assignment 11 – Protecting the System
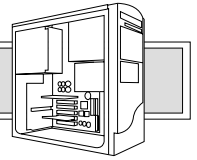
1 ..*Automated Systems Recovery*................*is only available with Windows XP Professiona.l*

2 *Backup and Restore Wizard (or Backup) is not available by default in*.. ....

..........*Windows XP Home*..

3 ..*Windows 2000 Professional*..........*and* ...... *Windows XP Professional*.... *are both provided with the Recovery Console.*

4 *System Restore is not available with* ....*Windows NT 4.0* ....*or*...
...............................*Windows 2000 Professional*........................

5 ..*Windows XP Home*...............*and*..............*Windows XP Professional* ....*do not support the Emergency Repair Disk tool.*

Acronyms, definitions, and abbreviations:

ASR can be used to resolve problems. Write the full name of the abbreviation here:

....................*Automated System Recovery*..

The MBR is a target for certain types of virus. What do the initials MBR stand for?

...................*Master Boot Record*..
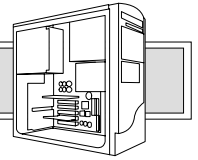
Assignment 11 – Protecting the System
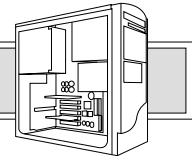
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Assignment 12 – The Control Panel
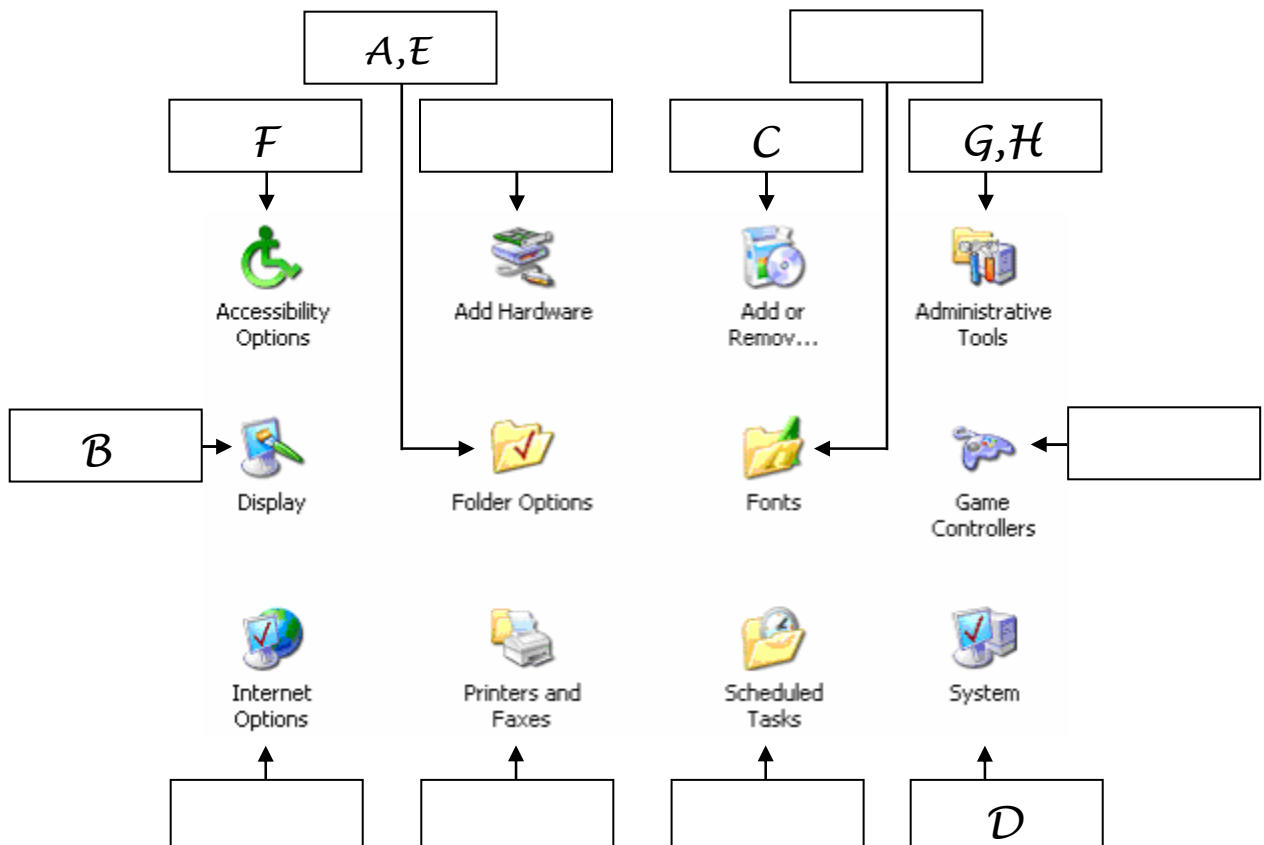
📝 **Control Panel Icons**

The graphic below shows a typical Control Panel(Classic View) with icons for the more common applets.
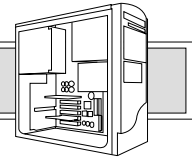*Identify the applet that would be used to configure the settings shown here:*
(Note that some of the settings are accessed from the same icon)
The first entry in the list (A) has been completed as an example.

A *Change the default folder view to Windows classic folders.*
B *Alter a setting to help minimise the effect of CRT display burn-in.*
C *Remove the Solitaire program.*
D *Download Windows updates automatically and notify me when they are ready to be installed.*
E *Change the application program automatically launched when a file with a .doc extension is opened.*
F *Increase the display contrast for a visually impaired user.*
G *Save the current Application log file.*
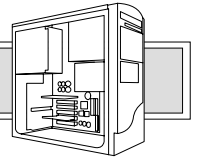**H** *Set a minimum password length of 8 characters.*

Assignment 12 – The Control Panel

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Assignment 13 – The Computer and Multiple Users

User Accounts:

The table below shows activities(as detailed by the Windows XP Help and Support Center User Acounts Overview) that can be performed on the practice computer. Which activities can be performed by the three accounts shown across the table?
Indicate your choices by writing YES or NO in the appropriate boxes:

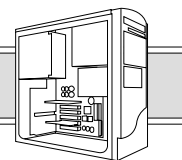| Account:	Administrator	Limited	Guest
Activity:			
Can access and run installed programs.	Yes	Yes	Yes
Can install software.	Yes	No	No
Can change all the accounts on the computer to Limited.	No	No	No
Change passwords for other accounts.	Yes	No	No
Change names of other accounts.	Yes	No	No
Change his or her account password.	Yes	Yes	This account has no password
Create and delete accounts.	Yes	No	No

Acronyms, definitions, and abbreviations:

An upgraded version of the NT file system is available that enables encryption of files, setting limits on the amount of hard drive space taken by any one user, and mounting a volume as a folder in another drive.

By what abbreviation is it known? .... *NTFS5* ....

and what does the abbreviation EFS represent? .... *Encrypting File System* ....

Write the full names of the networking abbreviations listed below:

NOS: .... *Network Operating System* ....

Assignment 13 – The Computer and Multiple Users

NDS: .... *Network Directory Services* ....

AD: .... *Active Directory* ....

RAS: .... *Remote Access Services* ....

NetBEUI: .... *NetBIOS Extended User Interface* ....

TCP/IP: .... *Transmission Control Protocol / Internet Protocol* ....

ARPANET: .... *Advanced Research Projects Agency Network* ....

UNC: .... *Universal Naming Convention* ....
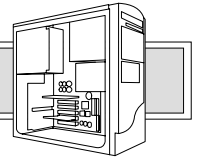
Assignment 14 – Hard Disk Drives

Instructor's Note:
The values here will depend upon the model of computer being used.
You should base your assessment of student work on the PC configuration you are using, and on the neatness and completeness of the record.
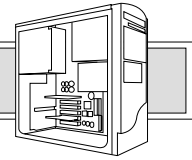
Disk Configuration

*The table below has been prepared for you to record the disk configuration of the practice computer. Complete the entries for the existing configuration **and add the details for the additional disk when it is installed***:

From the CMOS Setup Utility	Identification:	Capacity:
IDE Primary Master	MAXTOR 6L080L0	81GB
IDE Primary Slave	None	
IDE Secondary Master	TSSTCORP DVD-ROM	0 MB
IDE Secondary Slave	None	None
First SATA Master	ST380817AS	80GB
Second SATA Master		
Third SATA Master		
Fourth SATA Master	None	None

From Windows Computer Management Console	Volume Identification:	File System:	Capacity:
Original disk	System	NTFS	9.77GB
Original disk	Course Util	NTFS	9.77GB
Original disk	Backup	NTFS	9.77GB
Original disk	Unallocated	None	47.03GB
Newly-installed disk	NTFS Test	NTFS	18.55GB
Newly-installed disk	FAT32 Test	FAT32	9.77GB
Newly-installed disk	Unallocated	None	48.36GB

## Assignment 14 – Hard Disk Drives

📝 **Jumper Settings** *(Instructor's Note: The student is directed to only complete this section if an IDE hard drive has been installed)*

1: Record the jumper setting (draw in the jumper on the diagram below) for the existing disk as you found it: (If the jumper pins on your hard drive look different, sketch your own.)
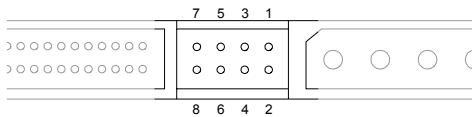
2: Record the jumper setting (draw in the jumper on the diagram below) for the existing disk as you set it for Cable Select. (The setting may be identical to the way you originally found it, but record it anyway): (If the jumper pins on your hard drive look different, sketch your own.)
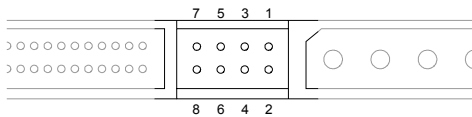
3: Record the jumper setting (draw in the jumper on the diagram below) for the additional disk as you set it for Cable Select: (If the jumper pins on your hard drive look different, sketch your own.)
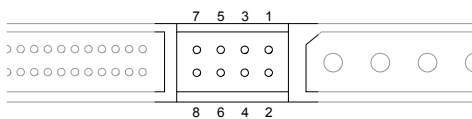
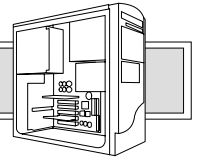📝 **Acronyms, definitions, and abbreviations:**

There are three main types of hard drive commonly found in desktop PCs and workstations. Write the full names of the types below:

IDE: .... *Integrated Drive Electronics*...

SATA: .... *Serial Advanced Technology Attachment,* or *Serial ATA*......................

SCSI: .... *Small Computer Systems Interface*...

Assignment 15 – The Registry and Device Installation

Registry Precautions

The five statements below refer to important precautions that should be taken when working with the registry. Complete each sentence by writing in the missing words.

1   *Always use* .... *programs like the* MMC ....*to view or change registry settings whenever possible*

2   *Before making changes to the registry, make*....................... *a backup* ....

3   *Keep a* .... *list of changes* ....*you make to the registry.*

4   *Only use*.......................... *the registry editor* ....*to edit the registry.*

5   *Make sure others do not*................... *have access* ....*to the registry.*

6   *Use the registry editor in* .... *Read-Only mode* ....*at all times except when making changes.*

Registry Backup

Write below the command, with the correct syntax and switches, that could be used to backup the system state to media on the D:drive.

The name of the backup job should be **Backup Job 2** *and the file name for the created backup file should be* **registry_backup.bkf**:
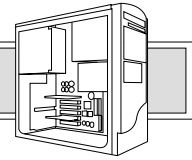
.. *ntbackup backup systemstate /J "Backup Job 2" /F D:\registry_backup.bkf"* ....

Registry Subtrees

Complete the table on the next page by writing in the name of five subtrees (or predefined root keys). Describe briefly their use in the space provided:

Assignment 15 – The Registry and Device Installation

Instructor's Note:
There are in fact six; any five of those shown here constitute a correct answer.

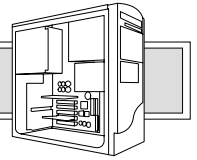| Subtree (or predefined root key) name.	Use:
HKEY_CLASSES_ROOT	Contains information about file associations.
HKEY_CURRENT_USER	Stores all information data for the currently logged on user.
HKEY_LOCAL_MACHINE	Stores information about the hardware currently installed in the computer.
HKEY_USERS	Stores all user-specific configuration data.
HKEY_CURRENT_CONFIG	Stores information about the hardware profile specified at startup.
HKEY_DYN_DATA	Stores a snapshot of all hardware in use to speed up system configuration.

Purchasing Hardware

Write below the four variables that you should consider when choosing what type of hardware device to purchase:

1 ....*What do I need the device to do?*..

2 ....*What are the expectations of the device?*...................................

3 ....*Can I or the customer afford it?*..

4 ....*How much do we care about the device?*....................................

Assignment 16 – Printers

Printer Technology Comparison

The table below shows nine characteristics of the three most popular print technologies (Impact, Inkjet, and Laser).
*For each characteristic, decide which technology it is mainly associated with, and whether the characteristic is an advantage or a disadvantage.*

For example, if you believe that a high speed of printing is mainly an advantage of the laser technology, then write Advantage in the middle column and Laser in the right column.

Complete the table:

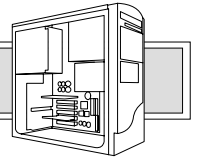| Characteristic	Disadvantage or Advantage	Print Technology
High speed of printing	*Advantage*	*Laser*
High cost of consumables	*Disadvantage*	*Inkjet*
Crisp and sharp image	*Advantage*	*Laser*
Poor image quality	*Disadvantage*	*Impact*
Can print multi-part forms	*Advantage*	*Impact*
Noisy and slow	*Disadvantage*	*Impact*
Ease of maintenance	*Advantage*	*Impact*
Low purchase cost	*Advantage*	*Inkjet*

Assignment 16 – Printers
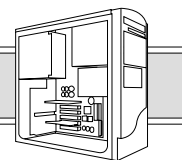
Laser Printing Process

The laser printing process involves seven main steps.
Write the steps below in the correct order :

1 .... *Communications between the computer and printer*

2 .... *Raster - image processing*

3 .... *Drum cleaning and charging*

4 .... *Imaging the drum*

5 .... *Developing*

6 .... *Transferring toner to the paper*

7 .... *Fusing the toner to the paper*

Assignment 17 – Modems
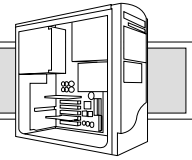
📝 **Modem settings**

The table below has been prepared so that information can be recorded about modem settings. Complete the table as you progress through the task:

Instructors Note:
The values here will depend upon the model of computer being used and the specific modem card. You should base your assessment of student work on the configuration you are using, and on the neatness and completeness of the record.
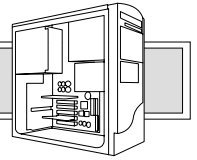
Setting	Value
Modem Name:	CXT 1086 - HCF PCI Modem
Driver Date:	30/04/2002
Driver Version:	212.172.61.0
Port:	COM3
Memory Range:	F90000000 - F900FFFF
I/O Range:	9000 - 9007
IRQ Number:	03

Assignment 17 – Modems

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Assignment 18 – Optical Storage and Backup

Instructors Note:
The values here will depend upon the model of computer being used.
You should base your assessment of student work on the PC configuration you are using, and on the neatness and completeness of the record.

CD and DVD Drive Identification

The table below has been prepared for you to record information about the CD and DVD drives.
Write the details as you discover them as you progress through the practical work:

| Unit:	Manufacturer and Identification:	IDE controller: (primary or secondary)	IDE cable position: (middle or end)
Originally installed optical drive	Samsung DVD-ROM SD-616E	Secondary Controller	End connector
New optical drive	Samsung CD-R/RW SW-252F	Secondary Controller	Middle connector

Jumper Settings

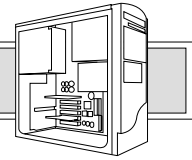*1: Record the jumper setting for the DVD drive as you originally found it:*
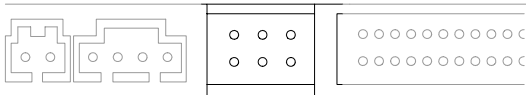
2: Record the jumper setting for the DVD drive as you changed it:
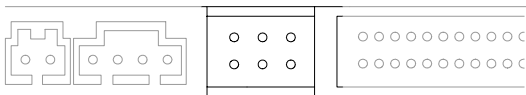
3: Record the jumper setting for additional device as you installed it:
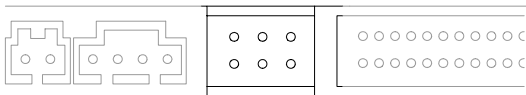
Assignment 18 – Optical Storage and Backup

📝 **Types of backup:**

The table below shows two types of backup policy for a five day period.

A Normal backup was performed on Monday night, and Incremental backups performed on the nights of Tuesday, Wednesday, Thursday, and Friday.
A file called Address Book.txt was accessed and changed during the day on Tuesday.
A file called Phone Book.txt was accessed and changed during the day on Tuesday, and again on Wednesday.

Write in the table the names of the two files in the space below the days of the week on which they would have been saved:

	Monday	Tuesday	Wednesday	Thursday	Friday
Normal backup	*Address Book.txt* *Phone Book.txt*				
Incremental backup		*Address Book.txt* *Phone Book.txt*	*Phone Book.txt*		

*Write in the table below the names of the two files in the space below the days of the week on which they would have saved if the backup policy was the same as above **except that** Differential instead of Incremental backups were taken:*

	Monday	Tuesday	Wednesday	Thursday	Friday
Normal backup	*Address Book.txt* *Phone Book.txt*				
Differential backup		*Address Book.txt* *Phone Book.txt*	*Address Book.txt* *Phone Book.txt*	*Address Book.txt* *Phone Book.txt*	*Address Book.txt* *Phone Book.txt*

Assignment 18 – Optical Storage and Backup
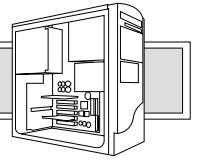
Acronyms, definitions, and abbreviations:

The topic of CD and DVD media is peppered with acronyms, definitions and abbreviations – write the meanings of those shown below:

CD-ROM: .... *Compact Disc Read Only Memory* ....

DVD: .... *Digital Versatile Disc* ....
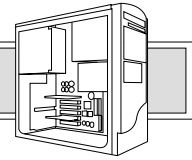
Instructors Note:
When DVDs were first launched, they were known as Digital Video Discs. When their use was extended to data, as well as video, the name was changed to Digital <u>Versatile</u> Discs.

CD-R: .... *CD Recordable* ....

CD-RW: .... *CD ReWritable* ....
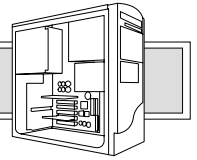
Assignment 18 – Optical Storage and Backup

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Assignment 19 – Managing Disks

📝 Disk Configuration

The table below has been prepared for you to record information about the practice computer system disk configuration.
Write the details as you discover them when you progress through the practical work:

Instructor's Note:
The values here will depend upon the model of computer being used and the configuration settings on initial installation.
You should base your assessment of student work on the PC configuration you are using, and on the neatness and completeness of the record.

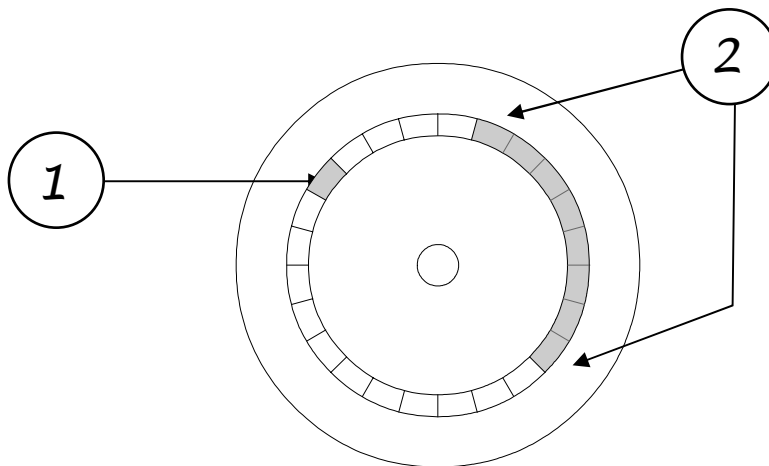| Disk 0	Partition names and sizes:			
Basic 37.27 GB	*System* 4.89GB NTFS	*Course Utilities* 4.88GB NTFS	*Backup* 4.88GB NTFS	*Unalloc.* 7.97

📝 Sectors and Clusters

The drawing below represents a 200 MB FAT16 partition.
Indicate:

1. *A sector*
2. *A cluster*   ***……..by placing a number in the relevant balloon.***

Now complete the following:

Sectors per cluster =   *8*...
Cluster Size =   *4KB*...

Assignment 19 – Managing Disks

Complete the table below by writing in the Sectors per Cluster and Cluster Size information for each of the file systems and partition size ranges given:

FAT 16 Partition size	Sectors per cluster	Cluster size
16 MB to 128 MB	4	2 KB
129 MB to 256 MB	8	4 KB
257 MB to 512 MB	16	8 KB
513 MB to 1024 MB	32	16 KB
1025 MB to 2 GB	64	32 KB

FAT 32 Partition size	Sectors per cluster	Cluster size
512 MB to 8 GB	8	4 KB
8 GB to 16 GB	16	8 KB
16 GB to 32 GB	32	16 KB
32 GB and beyond	64	32 KB

NTFS Partition size	Sectors per cluster	Cluster size
7 MB to 512 MB	1	512 bytes
513 MB to 1024 MB	2	1 KB
1025 MB to 2 GB	4	2 KB
2 GB to 2 terabytes	8	4 KB

Defrag

The table below has been prepared for you to add some key information that can be found by running the Disk Defragmenter Analyze program.
*Write in the values reported for the System volume:*

Instructor's Note:
Again the values here will depend upon the model of computer being used and the configuration settings on initial installation.

Volume Information:	Value:
Volume Size	Typically 9 - 10 GB
Cluster Size	4 KB
Used Space	Typically 2 - 3 GB
Free Space	Typically 7 - 8 GB
Total Files	Typically 12 - 14, 000

Assignment 20 – Adding Peripherals
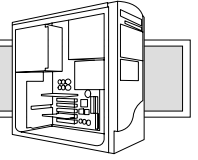
802.11 Standard

The 802.11a, 802.11b and 802.11g are important standards.

Complete the missing entries from the table below:

Standard:	802.11a	802.11b	802.11g
Attribute:			
Maximum Throughput	54 Mbps	11 Mbps	54 Mbps
Maximum Range	150 feet	300 feet	300 feet
Frequency	5 GHz	2.4 GHz	2.4 GHz

Acronyms, definitions, and abbreviations:

Wireless technology is peppered with acronyms, definitions and abbreviations – write the meanings of those shown below:

SWAP: .... *Shared Wireless Access Protocol* ....

DSSS: .... *Direct-sequence spread-spectrum* ....

FHSS: .... *Frequency-hopping spread-spectrum* ....

DECT: .... *Digital Enhanced Cordless Telecommunications* ....

PAN: .... *Personal Area Network* ....

IrDA: .... *Infrared Data Association* ....

Assignment 20 – Adding Peripherals

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